EL-MOASSER

# Mathematics

By a group of supervisors

PARENTS' GUIDE

Interactive E-learning Application

معاك
Ma3ak App

طبقًا لآخر تعديلات أقرتها وزارة التربية والتعليم



بتصريح وتحت إشراف
وزارة التربية والتعليم والتعليم الفني
MINISTRY OF EDUCATION AND TECHNICAL EDUCATION

FIRST TERM

4th PRIMARY

2023

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# How to use this guide ?

| Lesson No. | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
| Lesson 1 | Review Digit, Numeral, Number | Digit - Numeral - Number | • Students will explain the difference between a digit, numeral, and number.<br>• Students will discuss how the value of a digit can change. |
| Lessons 2&3 | Really Big Numbers | Digit - Million - Milliard - Period - Place value | • Students will identify all whole number place values through the One Milliard place.<br>• Students will explain how the value of a digit changes based on its place in a number. |
| | Changing Values | Milliard - Period - Place value | • Students will explain how the value of a digit changes as it moves to the left in a whole number.<br>• Students will describe patterns they observe in changing place values. |
| Lesson 4 | Review Comparing Values | | • Students will explain the relationship between a given place value and the place value to its left.<br>• Students will use multiplication to compare place values. |
| Lessons 5&6 | Many Ways to Write | Expanded form - Standard form - Word form | • Students will write numerals in standard, word, and expanded forms. |
| | Composing and Decomposing | Compose - Decompose - Decomposed form - Expanded form - Standard form - Word form | • Students will compose and decompose numerals in multiple forms. |

## Objectives and vocabulary

Describe the skills your child will learn in each lesson of the unit and new vocabulary your child need to learn through these lessons.

## Title

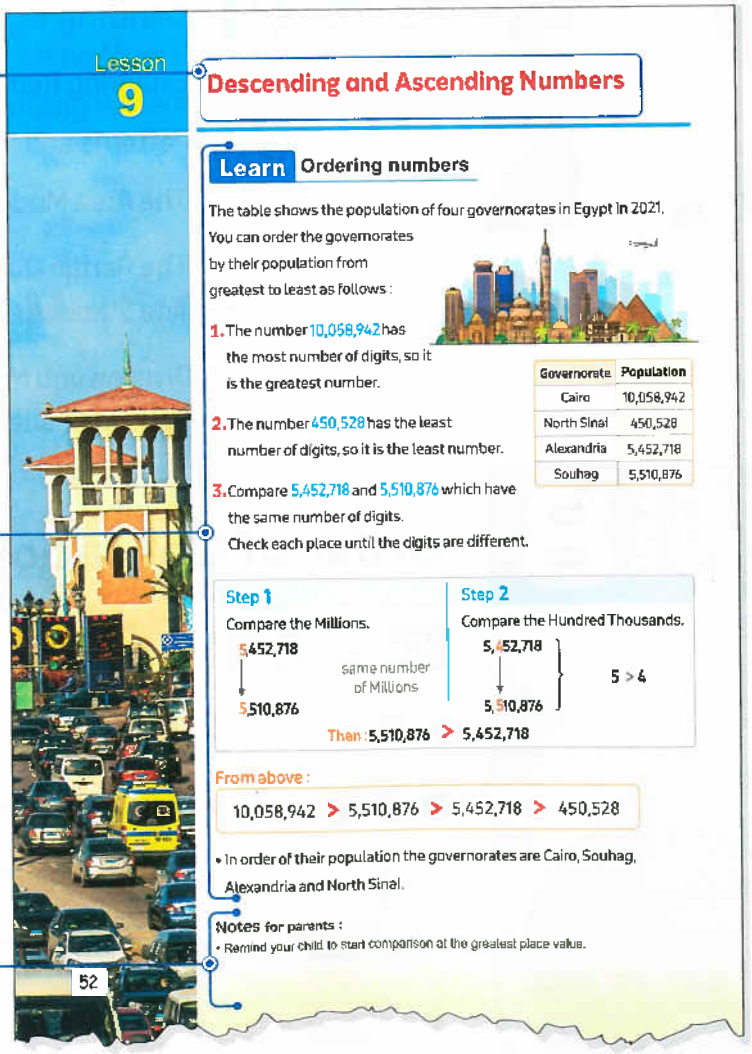
The lesson title describes the skill your child will learn in this lesson, and the lessons are arranged according to the curriculum of the school book.

## Learn

Explaining for the concept or the skill that your child should learn.

## Notes for parents

Extra activities to share with your child at home.



Lesson 9

**Descending and Ascending Numbers**

**Learn** Ordering numbers

The table shows the population of four governorates in Egypt in 2021.

You can order the governorates by their population from greatest to least as follows :

1. The number 10,058,942 has the most number of digits, so it is the greatest number.
2. The number 450,528 has the least number of digits, so it is the least number.
3. Compare 5,452,718 and 5,510,876 which have the same number of digits. Check each place until the digits are different.

| Governorate | Population |
|---|---|
| Cairo | 10,058,942 |
| North Sinai | 450,528 |
| Alexandria | 5,452,718 |
| Souhag | 5,510,876 |

**Step 1** Compare the Millions.

5,452,718 — same number of Millions — 5,510,876

**Step 2** Compare the Hundred Thousands.

5,452,718 / 5,510,876 → 5 > 4

Then : 5,510,876 > 5,452,718

From above :

10,058,942 > 5,510,876 > 5,452,718 > 450,528

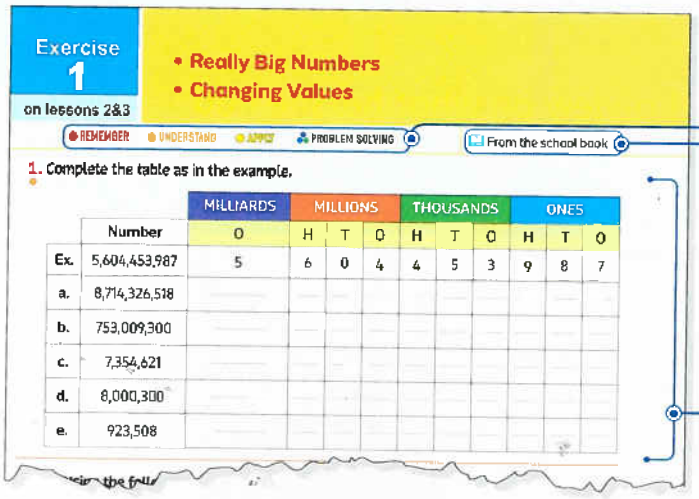
- In order of their population the governorates are Cairo, Souhag, Alexandria and North Sinai.

Notes for parents :

- Remind your child to start comparison at the greatest place value.

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# How to use this guide ?


Exercise 1
on lessons 2&3
• Really Big Numbers
• Changing Values
REMEMBER UNDERSTAND APPLY PROBLEM SOLVING
From the school book
1. Complete the table as in the example.

| | Number | MILLIARDS | MILLIONS | | | THOUSANDS | | | ONES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | O | H | T | O | H | T | O | H | T | O |
| Ex. | 5,604,453,987 | 5 | 6 | 0 | 4 | 4 | 5 | 3 | 9 | 8 | 7 |
| a. | 8,714,326,518 | | | | | | | | | | |
| b. | 753,009,300 | | | | | | | | | | |
| c. | 7,354,621 | | | | | | | | | | |
| d. | 8,000,300 | | | | | | | | | | |
| e. | 923,508 | | | | | | | | | | |

## Bloom's Taxonomy of cognitive levels

The questions within each exercise are classified according to the levels of Bloom's Pyramid.

## From the school book

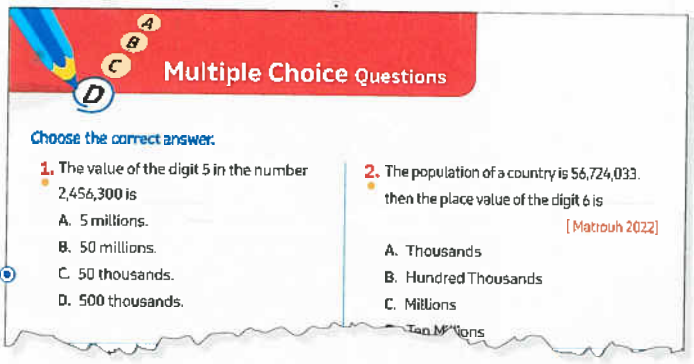
Selected questions from the school book.

## Exercise

Miscellaneous questions on the concept or the skill of the lesson.

## Multiple Choice Questions

Multiple choice questions to review the concept or the skill of the lesson to reinforce the learning of your child.


Multiple Choice Questions

Choose the correct answer.

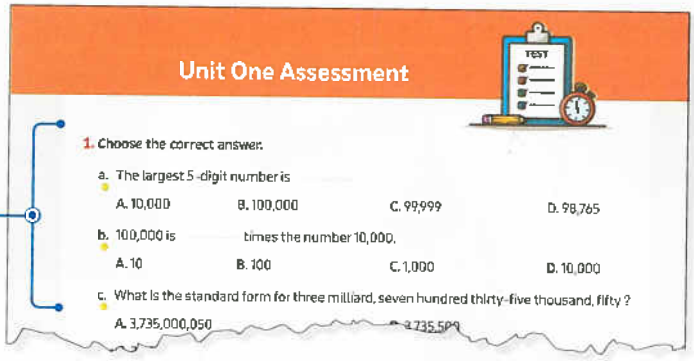
1. The value of the digit 5 in the number 2,456,300 is
A. 5 millions.
B. 50 millions.
C. 50 thousands.
D. 500 thousands.

2. The population of a country is 56,724,033. then the place value of the digit 6 is [Matrouh 2022]
A. Thousands
B. Hundred Thousands
C. Millions
D. Ten Millions

## Unit's Assessment

After finishing each unit, use the assessment page.

This assessment will give you feedback about your child's level through this unit.


Unit One Assessment

1. Choose the correct answer.
a. The largest 5-digit number is
A. 10,000 B. 100,000 C. 99,999 D. 98,765
b. 100,000 is times the number 10,000.
A. 10 B. 100 C. 1,000 D. 10,000
c. What is the standard form for three milliard, seven hundred thirty-five thousand, fifty ?
A. 3,735,000,050

## Important

The lessons indicated with the logo of [Just for Reading] are optional lessons and NOT included in exams.



# Revision

In this revision your child will review on what he/she had learned in primary three.

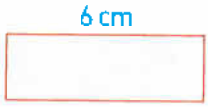


# Revision 1

**1.** Complete.

a. 32,621 + 18,709 = ____

b. 30 thousands = ____ hundreds.

c. The perimeter of the rectangle 

is ____ cm.

d. The place value of the digit 4 in the number 46,385 is ____

e. Thirty-eight thousand, five hundred two in standard form is ____

**2.** Choose the correct answer.

a. 35 ÷ 7 = ____

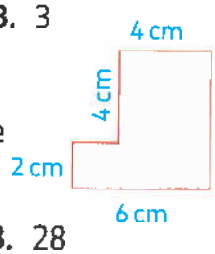
A. 5 B. 6 C. 7 D. 8

b. 3,000 + 829 = ____

A. 3,829 B. 8,293 C. 30,829 D. 3,928

c. 8 × ____ = (8 × 5) + (8 × 2)

A. 10 B. 3 C. 8 D. 7

d. The area of the shape 

is ____ square cm.

A. 30 B. 28 C. 24 D. 20

e. The greatest number formed from 7, 2, 0, 6, 8, 1 is ____

A. 870,621 B. 876,210 C. 102,678 D. 780,621

**3.** Arrange the following numbers from least to greatest.

56,210 , 506,021 , 650,201 , 171,000 , 43,692

The order is : ____ , ____ , ____ , ____ , ____

**4.** Find.

a. 7,263 − 4,081 = ____

b. 43,826 + 25,095 = ____

c. 9 × 3,000 = ____

d. 7 × 7 = ____

# Revision 2

**1.** Choose the correct answer.

a. 54,275 – 32,938 = ———

A. 12,337 B. 21,373 C. 21,733 D. 21,337

b. 501,326 < ———

A. 510,200 B. 501,236 C. 51,623 D. 56,632

c. 3 × 80 = ———

A. 24 B. 240 C. 2,400 D. 24,000

d. $\frac{1}{7}$ of 28 = ———

A. $\frac{1}{8}$ of 32 B. $\frac{1}{5}$ of 30 C. $\frac{1}{6}$ of 48 D. $\frac{1}{9}$ of 18

e. The perimeter of the square (5 cm) is ——— cm.

A. 20 B. 25 C. 10 D. 30

**2.** Complete.

a. Eight hundred sixty-three thousands, five hundred seven in standard form is ———

b. The place value of the digit 7 in 762,435 is ———

c. 7 × ——— = 63

d. ——— = 100,000 + 7,000 + 30 + 5

e. ——— tens = 170



**3.** A factory produces 800 cans of soft drink every day.

How many cans the factory produces in a week ?

**4.** Write the greatest number and smallest number can be formed from 9, 4, 0, 3, 1, 6.

- The greatest number :

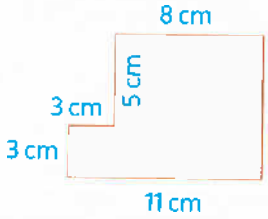
- The smallest number : ———

# Revision 3

**1.** Complete.

a. _____ ÷ 4 = 8

b. [5 × 6] × 7 = _____

c. The perimeter of the shape 

is _____ cm.

d. 8,762 – 7,648 = _____

e. The smallest number formed from 2, 7, 0, 6, 5 is _____

**2.** Choose the correct answer.

a. The value of the digit 3 in 721,362 is _____

A. 30,000 B. 3,000 C. 300 D. 30

b. The area of the rectangle whose length is 10 cm and width is 7 cm is _____ square cm.

A. 17 B. 34 C. 70 D. 44

c. _____ = 1,000 + 900 + 70 + 2

A. 19,472 B. 1,927 C. 10,972 D. 1,972

d. 61,072 + 9,838 = _____

A. 7,910 B. 70,910 C. 79,010 D. 70,091

e. 6 + 6 + 6 + 6 + 6 = 6 × _____

A. 6 B. 5 C. 7 D. 8

**3.** Arrange the following from least to greatest.

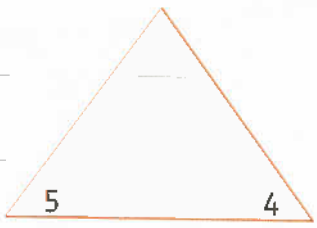
5 × 12 , 7 × 8 , 3 × 10 , 6 × 9 , 8 × 1

The order is : _____ , _____ , _____ , _____ , _____

**4.** Bassem has 72 marbles, he wants to put each 8 marbles in a bag.
How many bags does Bassem need ?

**5.** Find the product. Write the fact family.

- _____ × _____ = _____
- _____ × _____ = _____
- _____ ÷ _____ = _____
- _____ ÷ _____ = _____



UNIT 1

# Place Value

» **Concept 1 :** Reinforcing Place Value

» **Concept 2 :** Using Place Value



**Fast Fact**

*The least distance from the Earth to the Moon is about* ***384,402 Km.*** *which equals* ***384,402,000 m.***

Concept

1

# Reinforcing Place Value



**Fast Fact**

*The distance between the Earth and the Sun is about*

***149,598,000 Km.***

| Lesson No. | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
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Lesson 1

# Review Digit, Numeral, Number

Just for Reading



## Learn

### Digit

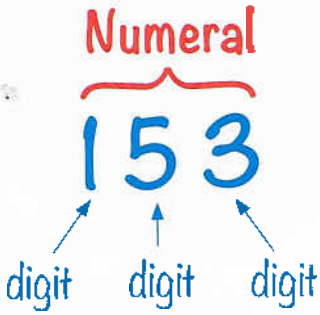
A digit is a **single symbol** used to make numerals.



There are only ten digits we use in our daily life which are :
**0**, **1**, **2**, **3**, **4**, **5**, **6**, **7**, **8** and **9**

### Numeral

A numeral is a **symbol** or **name** that stands for a number.




For Example : **5** , **39** , **153** , **Twelve** and **Thirty-six** are all numerals.

### Number

A **number** is a count or measurement that is really an **idea** in our minds. It consists of one digit or more.




For Example : **4** , **30** , **575** and **6,401** are all numbers.

The number is an idea, the numeral is how we write it.

**Notes**

- All digits and all numbers can be called numerals.
- All digits are numbers, each digit can be called a 1-digit number.

**Notes for parents :**

- Students often use the term number when referring to numerals. Since this is a common error we understand each other. However, the term digit is distinct.

## Example

a. Circle all the numerals below.

| | | |
|---|---|---|
| 15 | nine | 7 |
| thirty | 503 | |
| 20 cats | addition | |

b. Circle all the numbers below.

| | | |
|---|---|---|
| ten | 5 | 80 |
| forty-one | 205 | |

c. Circle all the digits below.

| | | |
|---|---|---|
| 90 | 8 | four |
| 0 | thirty | 10 |

## Solution

| | | |
|---|---|---|
| 15 | nine | 7 |
| thirty | 503 | |
| 20 cats | addition | |

| | | |
|---|---|---|
| ten | 5 | 80 |
| forty-one | 205 | |

| | | |
|---|---|---|
| 90 | 8 | four |
| 0 | thirty | 10 |

## Check your understanding

**Choose the correct answer.**

a. Which of the following is a digit?

A. seven B. 5 C. 20 D. fifty

b. Which of the following is a number?

A. one hundred B. three C. 235 D. twenty-five

c. Which of the following is NOT a number?

A. 5 B. eleven C. 0 D. 240,305

d. Which of the following is NOT a numeral?

A. 3 B. 204 C. sixty-two D. 30 boys

• Ask your child to write more examples for numbers, numerals and digits.

Lessons
# 2&3

- **Really Big Numbers**
- **Changing Values**



## Remember The place value

The value of each digit in any number depends on its place in this number.

For Example :

The least distance from the Earth to the moon is 384,402 km.

Notice the value of each digit in the number 384,402.

| PERIOD | | | PERIOD | | |
|---|---|---|---|---|---|
| THOUSANDS | | | ONES | | |
| Hundreds | Tens | Ones | Hundreds | Tens | Ones |
| 3 | 8 | 4 | 4 | 0 | 2 |

*Note that :*

*Each group of three digits is called a period. Each period has ones, tens and hundreds in it.*

384,402

- 3 is in the hundred thousands place. Its value is 300,000
- 8 is in the ten thousands place. Its value is 80,000
- 4 is in the thousands place. Its value is 4,000
- 4 is in the hundreds place. Its value is 400
- 0 is in the tens place. Its value is 0
- 2 is in the ones place. Its value is 2

## Example 1

**Write the place value and the value of the colored digit.**

| | place value | value |
|---|---|---|
| a. 79,285 | | |
| b. 980,758 | | |
| c. 29,510 | | |
| d. 220,089 | | |

**Solution**

| | place value | value |
|---|---|---|
| a. | thousands | 9,000 |
| b. | tens | 50 |
| c. | ten thousands | 20,000 |
| d. | hundreds | 0 |

**Notes for parents :**

- Let your child remember that the position of a digit in a numeral determines its value.

# Learn 1 Really big numbers

## Million

- You know that the greatest 6-digit number is 999,999.
  The number which comes just after 999,999 is 1,000,000. It is read as one million which is the smallest 7-digit number.
- To show 1,000,000 in the place-value chart a period for Millions has to be added to the left of the Thoudsands period.

| PERIOD | | | PERIOD | | | PERIOD | | |
|---|---|---|---|---|---|---|---|---|
| MILLIONS | | | THOUSANDS | | | ONES | | |
| Hundreds | Tens | Ones | Hundreds | Tens | Ones | Hundreds | Tens | Ones |
| | | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

**Write :** 1,000,000 **Read :** One million

## More about millions

Egypt population in 2020 was 102,334,404
look at this number on the place-value chart.



| PERIOD | | | PERIOD | | | PERIOD | | |
|---|---|---|---|---|---|---|---|---|
| MILLIONS | | | THOUSANDS | | | ONES | | |
| H | T | O | H | T | O | H | T | O |
| 1 | 0 | 2 | 3 | 3 | 4 | 4 | 0 | 4 |
| Hundred Millions place | Ten Millions place | Millions place | Hundred Thousands place | Ten Thousands place | Thousands place | Hundreds place | Tens place | Ones place |

**This number read as :**
One hundred two million, three hundred thirty-four thousand, four hundred four.
**or in a short way :** 102 million, 334 thousand , 404

*Math tip*
*The place-value chart helps you read greater numbers. You say : "102" then at the comma you name the period, "million".*

- Help your child to apply and extend understanding of the place value system to multi-digit whole numbers.

## Example 2

What is the place value and the value of each underlined digit ?

583,460,905

### Solution

**Place value :** Ten Millions
**Value :** 80 million

**Place value :** Ten Thousands
**Value :** 60 thousand

583,460,905

**Place value :** Millions
**Value :** 3 million

**Place value :** Tens
**Value :** 0 ten

## Milliard (Billion)

China has the world's largest population. In 1980, the population of China reached about 1,000,000,000. It is read as one milliard (or one billion).



To show 1,000,000,000 in the place-value chart a column for Milliards has to be added to the left of the Millions period.

| | PERIOD | | | PERIOD | | | PERIOD | | |
|---|---|---|---|---|---|---|---|---|---|
| MILLIARDS | MILLIONS | | | THOUSANDS | | | ONES | | |
| Ones | Hundreds | Tens | Ones | Hundreds | Tens | Ones | Hundreds | Tens | Ones |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Write :** 1,000,000,000 **Read :** One milliard

**Notes** for parents :

- Ask your child to tell you the value and the place value of each digit in the number : 243,019,505.

## More about milliards

Did you know the world's population in 2020 was about 7,794,798,739 ?
Look at this number on the place-value chart.

| | PERIOD | | | PERIOD | | | PERIOD | | |
|---|---|---|---|---|---|---|---|---|---|
| MILLIARDS | MILLIONS | | | THOUSANDS | | | ONES | | |
| O | H | T | O | H | T | O | H | T | O |
| 7 | 7 | 9 | 4 | 7 | 9 | 8 | 7 | 3 | 9 |

**This number read as :**

Seven milliard, seven hundred ninety-four million
seven hundred ninety-eight thousand,
seven hundred thirty-nine.

**or in a short way :**

7 milliard, 794 million, 798 thousand, 739



## Example 3

In the numeral 3,418,079,265 , what digit is in the :

**a.** Thousands place ?

**b.** Ten Millions place ?

**c.** Milliards place ?

**d.** Hundred Thousands place ?

### Solution

**a.** 9 **b.** 1 **c.** 3 **d.** 0

## How to read a large number ?

❶ Divide the number (from right to left) into "**periods**" each period contains 3 digits.

6,208,196,318

❷ Use the place-value chart to help you read the large number.

| | PERIOD | | | PERIOD | | | PERIOD | | |
|---|---|---|---|---|---|---|---|---|---|
| MILLIARDS | MILLIONS | | | THOUSANDS | | | ONES | | |
| O | H | T | O | H | T | O | H | T | O |
| 6 | 2 | 0 | 8 | 1 | 9 | 6 | 3 | 1 | 8 |
| 6 milliard | 208 million | | | 196 thousand | | | 318 | | |

• Help your child to use periods to read multi-digit numbers in an easy way.

❸ Start from the left and read the number in each period followed by the period name as follows.

Reading → **6,208,196,318**

**Six milliard, two hundred eight million,**

**one hundred ninety-six thousand, three hundred eighteen.**

**In a short way :** 6 milliard, 208 million, 196 thousand, 318

Use the place value chart to help you reading numbers

## Example 4

**Match the cards that have the same numeral.**

| | | | |
|---|---|---|---|
| a. | 43,509,458 | 1. | 4 milliard, 103 million, 905 thousand, 484 |
| b. | 403,590,548 | 2. | four million, nine hundred fifty thousand, eight hundred fifty-four |
| c. | 4,103,905,484 | 3. | forty-three million, five hundred nine thousand, four hundred fifty-eight |
| d. | 4,950,854 | 4. | 403 million, 590 thousand, 548 |

### Solution

a. → 3 b. → 4 c. → 1 d. → 2

### Check your understanding

1. **In each of the following numerals :**
   - underline the digit in the Hundred Thousands place.
   - circle the digit in the Ten Millions place.
   - draw a square around the digit in the Milliards place.

   a. 7,561,492,048 b. 7,914,500,721

2. **Read the following numbers**

   a. 912,031,301 b. 70,804,230 c. 5,003,521,216

**Notes for parents :**

- Ask your child to write a number through milliard and then ask him/her to read it loudly.

## Learn 2 Changing values



- The value of a digit changes as it moves to the left within a numeral.
- Our place-value system is based on tens.

  Each place value in this system is 10 times the one to the right of it.

| Millions | Hundred Thousands | Ten Thousands | Thousands | Hundreds | Tens | Ones |
|---|---|---|---|---|---|---|
| 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 2,000,000 | 200,000 | 20,000 | 2,000 | 200 | 20 | 2 |

(× 10 between each pair of adjacent columns)

- A digit in one place represents 10 times as much as it represents in the place to its right.
  For Example : The Hundreds place is 10 times the Tens place, so the value of 2 changes from 20 to 200.
- Observe the pattern in the number of zeroes.

### Example 5

**Fill in the blanks below.**



a. The value of the digit 3 in the number 7,431,210 is _____

b. The value of the digit 0 in the number 560,444,218 is _____

c. The value of 7 in the Hundreds place is _____

d. _____ is 10 times one hundred thousand.

e. 30 tens equals _____

f. 7,000 thousands = _____ millions.

### Solution

a. 30,000

b. 0

c. 700 [think : 7 × 100 = 700]

d. 1,000,000

e. 300 [think : 30 × 10 = 300]

f. 7 [think : 7,000 thousands = 7,000,000]

- Let your child understand that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.

## Check your understanding

1. **Fill in the blanks below.**
   a. The value of the digit 5 in the number 1,578,416,112 is _____
   b. The value of the digit 3 in the number 30,560,210 is _____
   c. _____ is 10 times three hundreds.

2. **What is the value of the following :**
   a. 8 in the Tens place ? _____
   b. 5 in the Ten Thousands place ? _____
   c. 400 tens ? _____
   d. 60 thousands ? _____

3. How does the value of 5 change as it moves from the Hundreds place to the Thousands place ?




**Notes for parents :**

- Help your child to solve the questions of "check your understanding".

# Exercise 1

on lessons 2&3

- Really Big Numbers
- Changing Values

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Complete the table as in the example.

| | Number | MILLIARDS | MILLIONS | | | THOUSANDS | | | ONES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | O | H | T | O | H | T | O | H | T | O |
| Ex. | 5,604,453,987 | 5 | 6 | 0 | 4 | 4 | 5 | 3 | 9 | 8 | 7 |
| a. | 8,714,326,518 | | | | | | | | | | |
| b. | 753,009,300 | | | | | | | | | | |
| c. | 7,354,621 | | | | | | | | | | |
| d. | 8,000,300 | | | | | | | | | | |
| e. | 923,508 | | | | | | | | | | |

**2.** Using the following number, complete the directions.

1,542,345,678

a. Underline the digit in the Ten Millions place.

b. Draw a square around the digit in the One Milliards place.

c. Circle the digit in the Hundreds place.

**3.** In the numeral 234 568, what digit is in the

a. Tens place ? _____

b. Hundred Thousands place ? _____

c. One Thousands place ? _____

**4.** Write the value of the underlined digit according to its place in each number as in the example.

▸ Example. 4<u>7</u>,209,531 → 40,000,000

a. 58,<u>4</u>86,098 → _____

b. 3,<u>7</u>84,168,411 → _____

c. <u>6</u>2,478,300 → _____

d. 462,4<u>1</u>7 → _____

e. 24,041,683 → _____

f. 8,000,418,617 → _____

g. 41,691,403 → _____

h. 321,428,218 → _____

i. 669,084,422 → _____

j. 7,261,909 → _____

k. 30,303,333 → _____

l. 2,100,841,621 → _____

m. 7,623,102,481 → _____

n. 714,291 → _____

o. 5,555,555 → _____

p. 61,230,478 → _____

[El-Monofia - Shebin El Koum 22]

**5. Complete as the example.**

▶ **Example.** The place value of the digit 7 in the number 7,321,521,800 is Milliards

a. The place value of the digit 0 in the number 5, 321, 041, 758 is _____

b. The place value of the digit 2 in the number 9, 152, 747, 180 is _____

c. The place value of the digit 8 in the number 4, 821, 400, 006 is _____

d. The place value of the digit 4 in the number 748, 263, 501 is _____

e. The place value of the digit 3 in the number 23, 174, 265 is _____

[Giza - 6th October 22]

**6. Match the cards that have the same numeral.**

| | | | |
|---|---|---|---|
| a. | 75,421,392 | 1. | 2 milliard, 500 million, 422 thousand, 300 |
| b. | 701,007,700 | 2. | Two million, five hundred thousand, four hundred twenty-two. |
| c. | 2,500,422,300 | 3. | 75 million, 421 thousand, 392 |
| d. | 2,500,422 | 4. | Seven hundred one million, seven thousand seven hundred. |

**7.** 📖 **What is the value of each of the following.**

a. 2 in the Tens place ? _____

b. 7 in the Hundreds place ? _____

c. 30 tens ? _____

d. 60 thousands ? _____

**8. How many ?**

a. How many tens are there in one hundred ? _____

b. How many tens are there in one thousand ? _____

c. How many hundreds are there in one million ? _____

d. How many thousands are there in one million ? _____

e. How many hundreds are there in one milliard ? _____

f. How many tens are there in one million ? _____

**9. Fill in the blanks as in the example.**

▶ Ex. • 23,800 = 238 hundreds.

• 750 hundreds = 75,000 = 75 thousands

a. 56,000 = _____ thousands.

b. 280,000 = _____ hundreds.

c. 25,600 tens = _____ thousands.

d. 300 thousands = _____ hundreds.

e. 55 thousands = _____ hundreds.

f. 850 thousands = _____ hundreds.

g. 72,000 tens = _____ thousands.

h. 87,900,000 hundreds = _____ millions.

**10. Put (✓) to the correct statement or (✗) to the incorrect statement.**

a. The digit in millions place in the number 819,408,376 equals 1.
[Cairo - Al Tebeen 2022] [ ]

b. The place value of the number 5 in the number : 9,008,527,314 in hundreds of thousands.
[Giza - Maths in spection 2022] [ ]

c. The value of the number 3 in the number 125,350,479 equals 300,000 [ ]

d. Milliard is the smallest number made up of 10 different digit. [ ]

e. The smallest number that can be formed using the numbers 0,1,2,3,4,5,6,7,8,9 is 1203456789.
[Kafr El-Sheikh - Balteem 2022] [ ]

f. [3 tens and 9 ones] = 10 × 390.
[Assiut - Manfalout 2022] [ ]

g. The number that is 100 times the number 45 is 4,500.
[Alexandria - Amria 2022] [ ]

h. 300 hundreds equals 3,000.
[Cairo - Heliopolis 2022] [ ]

**11.** **Sameh says : "In the number 5,555,555 all digits have the same value".**
Do you agree or disagree ? Explain your thinking using numbers and words.

**12.** **Is the digit 8 always worth 8 ( ▲▲▲ ▲▲▲ ▲▲ ) :**
Why or why not ?
Use what you know about place value to support your answer.

**13.** Write a 9-digit number that has a 3 in the Ten Millions place, a 5 in the Hundred Thousands place, and a 2 in the Ones place. Is this the only number you could have written ? **Explain.**

**14.** **Fill in the blanks.**

**a.** _____ is 10 times one hundred thousand.

**b.** _____ is 10 times two hundred.

**c.** _____ is 10 times seven thousand.

**d.** One million is _____ times one hundred thousand.

**15.** Amgad said that there are 300 hundreds in a 3,000. Do you agree or disagree ?
Use what you have learned about place value to explain your thinking.

**16.** **Choose a digit between 1 and 9. Use this number to complete the charts.**

| MILLIARDS | MILLIONS | | | THOUSANDS | | | ONES | | |
|---|---|---|---|---|---|---|---|---|---|
| O | H | T | O | H | T | O | H | T | O |
| | | | | | | | | | |

- My digit is _____
- Value of my digit in the Ones place _____
- Value of my digit in the Tens place _____

- Value of my digit in the Hundreds place _____
- Value of my digit in the Thousands place _____
- Value of my digit in the Ten Thousands place _____
- Value of my digit in the Hundred Thousands place _____
- Value of my digit in the Millions place _____
- Value of my digit in the Ten Millions place _____
- Value of my digit in the Hundred Millions place _____
- Value of my digit in the One Milliards place _____



## Challenge

17. Use the digits 5, 7, 3, 1, 8, 2, 9 and 6 to make the greatest number you can, then use the same digits to make the smallest number you can.

- The greatest is _____
- The smallest is _____
- How did the value of 7 change from the greatest number and the smallest number? Why did it change? Use words and numbers to explain your thinking.

_____



# Multiple Choice Questions

**Choose the correct answer.**

**1.** The value of the digit 5 in the number 2,456,300 is _____

A. 5 millions.
B. 50 millions.
C. 50 thousands.
D. 500 thousands.

**2.** The population of a country is 56,724,033, then the place value of the digit 6 is _____ [Matrouh 2022]

A. Thousands
B. Hundred Thousands
C. Millions
D. Ten Millions

**3.** The period of the underline digits in the numeral 25,613,729,114 is _____

A. Milliard. B. Millions.
C. Thousands. D. Ones.

**4.** The value of the digit 0 in the number 301,572,941 is _____

A. 0 B. 100
C. 1,000 D. 100,000

**5.** In which number does the 8 have a value of eight hundred ?

A. 538,419 B. 781,015
C. 271,825 D. 419,782

**6.** 720 hundreds = _____ tens.

A. 720 B. 7,200
C. 72,000 D. 720,000

**7.** In the number 34,042, the digit 4 in the thousands is equal to _____ times the digit 4 in the tens place. [Cairo - Maths inspection 2022]

A. 10 B. 100
C. 1,000 D. 10,000

**8.** The value of the 6 in 306,278 is 10 times the value of the 6 in which number ?

A. 21,637 B. 360,541
C. 412,016 D. 521,367

**9.** The number that is 100 times the number 560 is _____

A. 560 B. 5,600
C. 56,000 D. 560,000

**10.** The number in which the digit 7 has the greatest value is _____

A. 821,730,521 B. 152,007,000
C. 51,078,623 D. 7,810,521

**11.** The number 348 is multiplied by 10. What is the value of the digit 4 in the product ?

A. 4 B. 40 C. 400 D. 4,000

Lesson 4

# Review Comparing Values

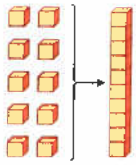
Just for Reading




## Learn Relations between place values

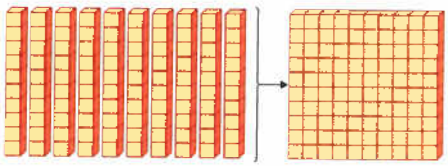
Think about the relationships among the Base-Ten blocks.

**There are 10 ones in 10.**



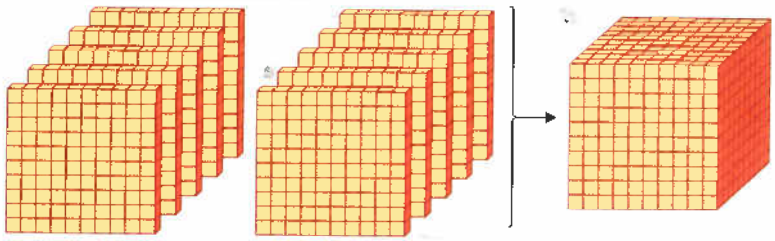
10 = 10 ones [10 × 1]

**There are 10 tens in 100.**



100 = 10 tens [10 × 10]

**There are 10 hundereds in 1,000.**



1,000 = 10 hundreds [10 × 100]

The blocks that represent numbers greater than 1,000 are too large to picture here. You can use the place-value chart to understand larger numbers.

| Thousands | | | Ones | | | |
|---|---|---|---|---|---|---|
| Hundreds | Tens | Ones | Hundreds | Tens | Ones | |
| | | | | | 1 | = 1 × 1 |
| | | | | 1 | 0 | = 10 × 1 |
| | | | 1 | 0 | 0 | = 10 × 10 |
| | | 1 , | 0 | 0 | 0 | = 10 × 100 |
| | 1 | 0 , | 0 | 0 | 0 | = 10 × 1,000 |
| 1 | 0 | 0 , | 0 | 0 | 0 | = 10 × 10,000 |

*Note that :*

- *10 is 10 times 1.*
- *100 is 10 times 10.*
- *1,000 is 10 times 100.*
- *The value of the digit 1 represents 10 times as you move one place to the left on the place-value chart.*

**Examples for relationships between place values :**

- The value of the Hundreds place is 10 times the value of the Tens place.
- The value of the Thousands place is 10 times the value of the Hundreds place.
- The value of Thousands place is 100 times the value of the Tens place.

**Notes for parents :**

- Let your child describe the relationships between the place values, for example the value of the Thousands place is 10 times the value of Hundreds place.

## Example 1

**In the number 555,555 :**

a. In which place is the value of 5 is 10 times the value of 5 in the Hundreds place ?

b. In which place is the value of 5 is 100 times the value of 5 in the Tens place ?

c. In which place is the value of 5 is 1,000 times the value of 5 in the Hundreds place ?

### Solution

a. Thousands place

| THOUSANDS | | | ONES | | |
|---|---|---|---|---|---|
| H | T | O | H | T | O |
| 5 | 5 | 5 | 5 | 5 | 5 |

×10

b. Thousands place.

| THOUSANDS | | | ONES | | |
|---|---|---|---|---|---|
| H | T | O | H | T | O |
| 5 | 5 | 5 | 5 | 5 | 5 |

×10 ×10

×100

c. Hundred Thousands place.

| THOUSANDS | | | ONES | | |
|---|---|---|---|---|---|
| H | T | O | H | T | O |
| 5 | 5 | 5 | 5 | 5 | 5 |

×10 ×10 ×10

×1,000

## Example 2

a. What is the number that is 1,000 times of 450 ?

b. What is the number that is 100 times of 15 million ?



### Solution

a. 450 × 1,000 = 450,000 (You may add three zeroes to 450)

b. 15,000,000 × 100 = 1,500,000,000 (You may add two zeroes to 15 million)

**Notes for parents :**

- Ask your child how many times greater is the Hundreds place than the Tens place for the same digit ? He/she should answer: 10 times.

## Example 3

**Fill in the blanks below.**

a. [4 tens and 8 ones] × 10 = _____

b. [8 hundreds and 8 tens] × 100 = _____

c. [3 thousands and 2 hundreds] × 1,000 = _____

d. 78 thousands × 100 = _____



### Solution

a. [40 + 8] × 10 = 48 × 10 = 480

b. [800 + 80] × 100 = 880 × 100 = 88,000

c. [3,000 + 200] × 1,000 = 3,200 × 1,000 = 3,200,000

d. 78,000 × 100 = 7,800,000

## Check your understanding

1. **In the number 33,333 :**
   a. In which place is the value of 3 is 100 times the value of 3 in the Hundreds place ?
   _____
   b. In which place is the value of 3 is 1,000 times the value of 3 in the Ones place ?
   _____

2. **Fill in the blanks below.**
   a. The number that equals 100 times the number 12 million is _____
   b. The number that equals 10 times the number 125 million is _____
   c. [5 hundreds and 3 tens] × 1,000 = _____
   d. 35 ten thousands × 100 = _____

• Direct your child to solve "check your understanding" and tell how he/she solve each problem.

Lessons
**5&6**

# • Many Ways to Write
# • Composing and Decomposing



## Learn 1 Many ways to write numbers

The average distance between Jupiter and the sun is 778,340,821 km.



Place-Value Chart

| MILLIONS | | | THOUSANDS | | | ONES | | |
|---|---|---|---|---|---|---|---|---|
| H | T | O | H | T | O | H | T | O |
| 7 | 7 | 8 | 3 | 4 | 0 | 8 | 2 | 1 |

**Standard Form :** 778,340,821

*"Commas are used to show periods"*

**Expanded Form :** 700,000,000 + 70,000,000 + 8,000,000 + 300,000 + 40,000 + 800 + 20 + 1

*"Zeroes are not needed in expanded form because there is nothing in that place value; as 0 in Thousands place".*

**Word Form :** Seven hundred seventy-eight million, three hundred forty thousand, eight hundred twenty-one.

*"Commas are used to separate Millions, Thousands and Ones periods".*

**Short-Word Form :** 778 million, 340 thousand, 821.

**Notes**

- We use standard form most often.
- Numbers written in expanded form show the value of each digit.

**Notes for parents :**

- Your child may be confused about how to represent a place value with a 0 digit in expanded form. For example : 30,456 = 30,000 + 400 + 50 + 6. The 0 is not represented in expanded form because in standerd form the 0 represents that there is nothing in that place value.

## Example 1

**Write each number in standard form.**

a. 9,000,000,000 + 300,000,000 + 20,000,000 + 600,000 + 400 + 30

b. Three milliard, six hundred million, five hundred forty thousand, six hundred fifty.

### Solution

a. 9,320,600,430

b. 3,600,540,650

## Example 2

**Write each number in word form.**

a. 4,008,011,091

b. 60,000,000 + 7,000,000 + 200,000 + 40,000 + 500 + 10 + 3

### Solution

a. Four milliard, eight million, eleven thousand, ninety-one.

b. Sixty-seven million, two hundred forty thousand, five hundred thirteen.

## Example 3

**Write each number in expanded form.**

a. 1,300,040,005

b. 50,600,204

### Solution

a. 1,000,000,000 + 300,000,000 + 40,000 + 5

b. 50,000,000 + 600,000 + 200 + 4

### Check your understanding

**Complete.**

a. 5,000,000,000 + 70,000 + 1,000 + 40 + 9 = _____ [in standard form]

b. Fifty-eight million, thirty-seven thousand, forteen = _____ [in standard form]

c. 3,300,030,303 = _____ [in word form]

d. 7,608,490 = _____ [in expanded form]

- Your child may struggle to say large numbers and need to be reminded to group the numbers into periods as they read them aloud.
- Remind your child to use commas when writing numbers in the word form.

## Learn 2 Composing and decomposing numbers

- Composing numbers means (put together), and decomposing numbers means (broken apart).
- You can decompose the number 5,456,387 in different ways using place-value chart :

| MILLIONS | | | THOUSANDS | | | ONES | | |
|---|---|---|---|---|---|---|---|---|
| H | T | O | H | T | O | H | T | O |
| | | 5 | 4 | 5 | 6 | 3 | 8 | 7 |

▶ 1st way : Expanded Form :

$5,456,387 = 5,000,000 + 400,000 + 50,000 + 6,000 + 300 + 80 + 7$

▶ 2nd way :

$5,456,387 = [5 \times 1,000,000] + [4 \times 100,000] + [5 \times 10,000] + [6 \times 1,000] + [3 \times 100] + [8 \times 10] + [7 \times 1]$

### Example 4

**Complete the following.**

a. **Composed :** 8,035,402,176

**Decomposed :** _____

b. **Composed :** _____

**Decomposed :** $[7 \times 1,000,000] + [9 \times 100,000] + [8 \times 1,000] + [2 \times 10] + [5 \times 1]$

### Solution

a. **Decomposed :** $[8 \times 1,000,000,000] + [3 \times 10,000,000] + [5 \times 1,000,000] + [4 \times 100,000] + [2 \times 1,000] + [1 \times 100] + [7 \times 10] + [6 \times 1]$

b. **Composed :** 7,908,025

### Check your understanding

**Complete the following.**

a. **Compose :** 7,504,092,415

**Decompose :** _____

b. **Compose :** _____

**Decompose :** $[3 \times 1,000,000,000] + [2 \times 100,000,000] + [5 \times 10,000,000] + [4 \times 100,000] + [7 \times 10,000] + [8 \times 1,000] + [6 \times 10] + [9 \times 1]$

**Notes for parents :**

- Make sure that your child know the difference between the terms compose and decompose.
- Make sure that your child knows how to represent a zero in a place when the number is decomposed.

# Exercise 2

on lessons 5&6

- Many Ways to Write
- Composing and Decomposing

REMEMBER UNDERSTAND APPLY PROBLEM SOLVING | From the school book

**1.** Write each number in standard form.

a. Three hundred seventy. _____

b. Four hundred and nine. _____ [El-Monofia - Quesna 22]

c. 34 million, 97 thousand. _____ [Giza - Kerdasa 22]

d. Three million, two hundred fourteen thousand, nine hundred thirty-six.

_____ [El-Menia - Samalot 22]

e. Five hundred twenty-seven million, nine hundred thousand, six hundred forty.

_____

f. Three milliard, four hundred two million, seventeen. _____

g. 20,000 + 7,000 + 400 + 20 + 2. _____

h. 70,000,000 + 126,000 + 450 = _____ [El-Menia - Der Mawas 22]

i. 1,000,000,000 + 400,000,000 + 3,000,000 + 20 + 5. _____

j. 700,000,000 + 30,000 + 1,000 + 500 + 40. _____

**2.** Write the expanded form of each of the following.

a. 50,391 _____

b. 740,821 _____

c. 1,756,300 _____

d. 54,632,405 _____

e. 701,462,051 _____

f. 9,989,791,985 _____

g. 35 million, 17 thousand, 230 = _____

h. Two milliard, four hundred twenty million, three hundred fifty-two thousand, one hundred three = _____

**3.** Write each number in word form.

a. 48 _____

b. 567,421 _____

c. 3,562,504 _____

d. 54,213,450 _____

e. 5,408,921,002 _____

f. 700,000 + 60,000 + 20 + 9 _____

_____

g. 5,000,000,000 + 7,000,000 + 900,000 + 3,000 + 20 _____

_____

h. 900,000,000 + 60,000,000 + 6,000,000 + 40,000 + 600 + 5 _____

_____

i. 5,000,000,000 + 700,000,000 + 30,000,000 + 800,000 + 9,000 + 10 + 7 _____

_____

**4.** Complete the following.

a. **Composed :** 309,431

**Decomposed :** _____

b. **Composed :** 7,052,318,709

**Decomposed :** _____

c. **Composed :** _____

**Decomposed :** (7 × 10,000) + (8 × 1,000) + (5 × 100) + (2 × 10) + (6 × 1)

d.

| MILLIARDS | MILLIONS | | | THOUSANDS | | | ONES | | |
|---|---|---|---|---|---|---|---|---|---|
| O | H | T | O | H | T | O | H | T | O |
| 2 | 8 | 0 | 5 | 4 | 0 | 0 | 6 | 9 | 3 |

**Composed :** _____

**Decomposed :** _____

**5.** Decompose the following numerals using expanded form.

a. 170,392 = _____ + _____ + _____ + _____ + _____

b. 105,208 = _____ + _____ + _____ + _____

c. 601,207 = _____ [El-Menia 2022]

d. 2 million, 277 thousand, 191 = _____

e. 17 million, 230 thousand, 14 = _____

f. Three milliard, one hundred thirty-seven million, six hundred nineteen thousand, eighty-eight = _____

**6. Complete the following.**

a. 700,005,009 = seven hundred _____, five _____, nine.

b. 4,030,400,050 = _____ milliard, _____ million, _____ thousand, _____

c. 417,900,770 = _____ seventeen million, nine hundred _____, _____ seventy.

d. 2,100,080,005 = _____ milliard, one _____, eighty _____, five.

e. 52,376 = fifty two _____, three hundred _____
= _____ + 2,000 + _____ + 70 + _____

**7. Put (✓) to the correct statement or (✗) to the incorrect statement.**

a. The standard form of the number : 625 million, 438 thousand, 200 is 625,438,200. [Cairo - El-Kobba 22] [ ]

b. The word form of the number 800,000 + 50,000 + 30 + 9 is eight hundred fifty thousand, thirty-nine. [Alexandria - Amria 22] [ ]

c. 1,485 = [1 × 10,000,000] + [4 × 10,000] + [8 × 1,000] + [5 × 1] [ ]

d. [5 × 1] + [8 × 1,000] + [4 × 10,000] = 1,485. [Alexandria - West 22] [ ]

e. The decomposed form for the number : nine million, four hundred forty thousand, two hundred and twenty are :
[9 × 1,000,000] + [4 × 100,000] + [4 × 10,000] + [2 × 1000] + [2 × 10]. [ ]

## Challenge

**8.** Write 16 ten thousands + 5 thousands + 64 tens in standard form = _____

**9.** Find two 9-digit numbers with the difference between them is one million.

_____ and _____

# Multiple Choice Questions

**Choose the correct answer.**

**1.** What is the standard form for $3,000,000 + 500,000 + 50$ ?

A. 355 B. 3,500,500

C. 3,500,050 D. 3,005,005

**2.** What is the standard form of eighteen million, six hundred five thousand ?

A. 18,605,000 B. 81,605,000

C. 1,860,500 D. 18,650,000

[Alexandria - El-Montaza 22]

**3.** The number 1 milliard, 235 million, and 127 in standard form = ——— [Cairo - Al-Tebeen 22]

A. 1,235,000,127 B. 1,235,127 C. 1,272,351 D. 1,235,127,000

**4.** The expanded form of the numeral 7,215,603 is ——— [Alex. - Borg El-Arab 22]

A. $3 + 60 + 5,000 + 10,000 + 200,000 + 7,000,000$

B. $3 + 60 + 500 + 1,000 + 20,000 + 700,000$

C. $3 + 600 + 5,000 + 10,000 + 200,000 + 7,000,000$

D. $3 + 600 + 5,000 + 1,000 + 200,000 + 7,000,000$

**5.** The number 173 million, 904 thousand, 562 in standard form is ——— [El-Dakahlia 22]

A. 173,000,904,562 B. 173,940,562

C. 173,904,562 D. 173,562,904

**6.** Which is the correct way to write the numeral 25,702 in word form ?

A. twenty-five, seven hundred two.

B. twenty-five thousand, seven hundred two.

C. twenty-five ten thousand, seven hundred two.

D. twenty-five thousand, seventy-two.

**7.** Which expression decomposes the numeral 50,374 in expanded form ?

A. $50,000 + 300 + 70 + 4$

B. $50,000 + 3,000 + 70 + 4$

C. $50,000 + 3,000 + 700 + 4$

D. $5,000 + 300 + 70 + 4$

**8.** Which is a compose to $[7 \times 10,000] + [2 \times 10] + [4 \times 1]$ ?

A. 724 B. 70,240

C. 7,024 D. 70,024

# Concept 2

# Using Place Value



**Fast Fact**

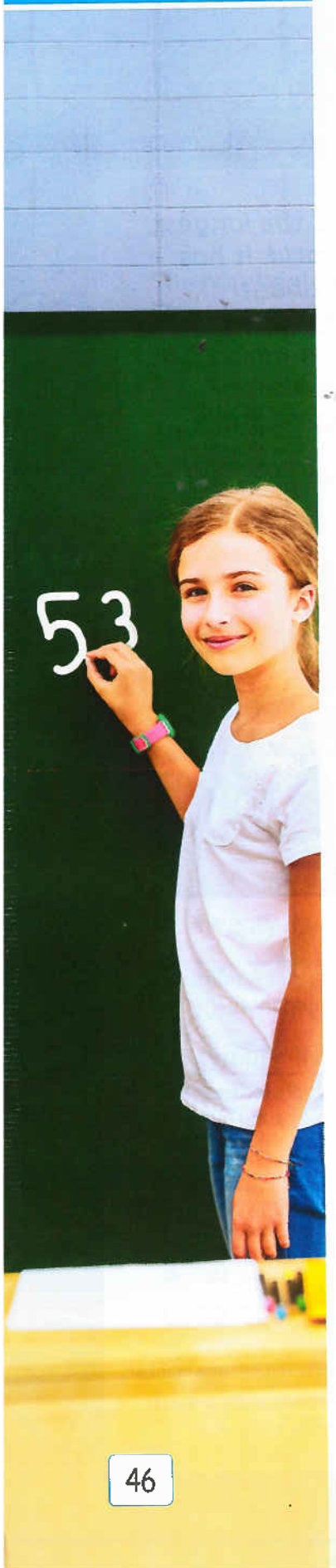
*The Nile River is the longest river in the world. It has a length about (6,659 kilometers). Compare its length with the Amazon. The Amazon is about (6,400 kilometers) long.*

| Lesson No. | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
| Lesson 7 | Review Comparing Really Big Numbers | Compare - Less than - Greater than - Equal to | • Students will use place value to compare large numerals.<br>• Students will use symbols to express numerical comparisons. |
| Lesson 8 | Comparing Numbers in Multiple Forms | Decomposed form - Expanded form - Standard form - Word form | • Students will compare numbers in multiple forms.<br>• Students will describe strategies for comparing numbers in multiple forms. |
| Lesson 9 | Descending and Ascending Numbers | Ascending - Descending - Order - Compare - Decomposed form - Expanded form - Standard form - Word form | • Students will order numbers in multiple forms.<br>• Students will describe strategies for ordering numbers in multiple forms. |
| Lesson 10 | Predicting the Unpredictable | Estimation - Front-end estimation - Reasonable | • Students will explain front-end estimation.<br>• Students will use front-end estimation to approximate large numbers. |
| Lesson 11 | Rounding Rules | Estimation - Rounding - Nearest - Reasonable - Accurate | • Students will apply multiple strategies to round numbers.<br>• Students will discuss whether rounding or front-end estimation provide a more accurate estimate. |

Lesson 7

# Review Comparing Really Big Numbers

Just for Reading




## Learn How to compare numbers ?

### First Comparing numbers have different number of digits

When comparing numbers, the number which has more digits is the greater.

For Example : **5,302,200 > 899,529**

because 5,302,200 has more digits than 899,529

### Second Comparing numbers have the same number of digits

- You can compare two numbers with the same number of digits **by starting at the left and moving right** until you come to a pair of digits that **do not have the same value.**

Compare 12,673 and 12,763. Start at the left. Check each place until the digits are different.

| Step 1 | Step 2 | Step 3 |
|---|---|---|
| Compare the Ten Thousands.<br>12,673<br>↓ same number of Ten Thousands<br>12,763 | Compare the Thousands.<br>12,673<br>↓ same number of Thousands<br>12,763 | Compare the Hundreds.<br>12,673<br>↓ 7 > 6<br>12,763 |

Since **12,763 > 12,673** Mina wrote the greater number.

More Examples :

- 754,042 < 755,950
- 42,437 > 42,347
- 755,972 < 1,752,421
- 6,406,367 = 6,406,367

**Notes** for parents :

- Ask your child to consider how many digits are in a numeral when he/she compares.

## Example

Write [>, < or =] to compare.

a. 37,048 ◯ 37,184

b. 217,906 ◯ 271,906

c. 4,010,065 ◯ 4,000,056

d. 810,340 ◯ 810,340

## Solution

a. 37,048 < 37,184

b. 217,906 < 271,906

c. 4,010,065 > 4,000,056

d. 810,340 = 810,340

## Check your understanding

Write [>, < or =] to compare.

a. 2,346 ◯ 2,338

b. 478,765 ◯ 479,112

c. 723,215 ◯ 723,215

d. 752,321,271 ◯ 72,321,271

e. 503,278,105 ◯ 503,279,100

f. 7,492,102,235 ◯ 7,491,102,235

• If your child has difficulty making comparisons, let he/she first circle the place where the digits are different.

Lesson
8

# Comparing Numbers in Multiple Forms




## Learn How to compare numbers in multiple forms ?

- You can compare numbers in any forms : standard, expanded and word form.
- You may convert to standard form to compare, or use place value in expanded form or in word form to compare.

### Example

**Write [>, < or =] to compare.**

| | | | |
|---|---|---|---|
| a. | 70,000 + 4,000 + 50 + 7 | ◯ | 70,000 + 4,000 + 500 + 70 |
| b. | Two milliard, seven hundred thirty-eight thousand, ten. | ◯ | Two milliard, seven hundred thirty-five thousand, eleven. |
| c. | 3,000,000 + 7,000 + 800 + 9 | ◯ | Three million, seven thousand, eight hundred nine. |
| d. | [7 × 1,000,000] + [5 × 100,000] + [3 × 1,000] + [4 × 100] + [9 × 1] | ◯ | 7,000,000 + 500,000 + 3,000 + 400 + 90 |

**Solution**

a. <  b. >  c. =  d. <

## Check your understanding

**Write [>, < or =] to compare.**

| | | | |
|---|---|---|---|
| a. | 500,000 + 70,000 + 90 + 8 | ◯ | 1,000,000 + 5,000 + 1 |
| b. | Three milliard, two hundred fifty-two thousand, three hundred four. | ◯ | Three milliard, two hundred fifty-two thousand, thirty-four. |
| c. | [8 × 1,000,000] + [6 × 1,000] + [5 × 100] + [7 × 10] | ◯ | [8 × 1,000,000] + [2 × 10,000] + [6 × 1,000] + [5 × 100] + [9 × 1] |
| d. | 2,000,000,000 + 400,000,000 + 2,000 + 30 + 2 | ◯ | 2,000,000,000 + 50,000,000 + 8,000,000 + 9,000 + 50 + 9 |

**Notes for parents :**

- Your child may struggle with comparing numbers in word form or expanded form. He/she may convert to standard form to compare.

Exercise 3

on lesson 8

# Comparing Numbers in Multiple Forms

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Compare. Write (> , < or =).

| | | | | | |
|---|---|---|---|---|---|
| a. | 190,098 | 19,098 | b. | 9,854,705 | 11,012,314 |
| c. | 7,798,562,415 | 7,798,567,999 | d. | 571,600,254 | 571,600,329 |
| e. | 1,000,000,000 | 900,000,000 | f. | 40,000 | 400 thousands |
| g. | 5,000 | 500 tens | h. | 7,100,600,200 | 8 milliards |

**2.** Compare. Write (> , < or =).

| | | | |
|---|---|---|---|
| a. | 7,000 millions | | 7 milliards |
| b. | 14,617 | | 10,000 + 4,000 + 600 + 20 |
| c. | 5 milliards, 367 thousand | | 5,367,000,000 |
| d. | Ninety-seven million, three hundred one | | 90,000,000 + 7,000,000 + 3,000 + 1 |
| e. | 5,193,492,500 | | five milliard, three hundred million, seven hundred fifteen thousand, thirty-four. |
| f. | [7 × 100,000,000] + [4 × 10,000,000] + [9 × 10,000] + [8 × 100] + [1 × 10] | | 70,000 + 9,000 + 600 + 40 + 3 |
| g. | 8,040,761,903 | | 8,000,000,000 + 400,000,000 + 700,000 + 60,000 + 1,000 + 900 ÷ 3 |
| h. | 4,000,000,000 + 5,000 + 1 | | 4,000,000 + 70,000 + 10 |
| i. | Seventeen million, four hundred twenty-five thousand, six hundred five. | | [1 × 10,000,000] + [7 × 1,000,000] + [4 × 100,000] + [2 × 10,000] + [6 × 100] + [5 × 1] |
| j. | Four hundred twenty-three thousand, twelve | | 400,000 + 30,000 + 2,000 + 20 + 1 |

**3.** Put (✓) to the correct statement or (✗) to the incorrect statement.

a. $6{,}514 > 30{,}000 + 400 + 20 + 1$ [Giza - Awseem 22] [ ]

b. 40 hundreds + 50 tens + 81 ones = 4,581 [ ]

c. 4 thousands + 8 hundreds + 1 ten + 5 ones > 4,581 [ ]

d. $5{,}000{,}000 + 400{,}000 + 10{,}000 + 6{,}000 + 300 + 7 < 5{,}416{,}370$ [ ]

e. 50 hundreds + 40 tens + 81 ones = 4,581 [ ]

f. 50 thousands + 8 hundreds + 1 ten + 4 ones < 50,418 [ ]

g. 500,000 + 40,000 + 3,000 + 10 + 5 > five hundred and forty three thousand, fifteen. [ ]

**4.** Write a number.

a. Create a numeral that is less in the Hundred Thousands place than [<] 893,820

b. Create a numeral that is greater in the Millions place than [>] 8,933,001

c. Create a numeral that is less in the Ten Millions place than [<] 32,427,400

d. Write a numeral in expanded form that is equal [=] 2,445,232,197

e. Create a numeral that is greater in the Ten Thousands place than [>] six milliard, four hundred million, seven hundred twenty thousand, nine hundred eleven.

f. Create a numeral that is greater in the Hundred Thousands place than [>] $3{,}000{,}000{,}000 + 400{,}000{,}000 + 400{,}000 + 2{,}000 + 300 + 2$

## Challenge

**5.** Which is greater, the number that is 1,000 less than 13,495 or the number that is 10,000 less than 23,495 ?

**6.** Describe the error in the following number sentence, and then explain how you would correct it. $24{,}152{,}614 < 24{,}125{,}614$

# Multiple Choice Questions

**Choose the correct answer.**

**1.** 785,743 ____ 794,832

A. >  B. <  C. =

**2.** 83,754 ____ 100,000

A. >  B. <  C. =

**3.** 100,000,040 ____ One hundred million, forty.

A. >

B. <

C. =

**4.** Which number sentence is **TRUE**?

A. 300 thousand < 99,900

B. 62,889 > 104,772

C. 150,600 > 100,000 + 50,000 + 6

D. 7,569,120 > 7,569,210

**5.** Which number sentence is **NOT TRUE**?

A. 2,304 < 2,340

B. 27,920 > 27,790

C. 1,005,301 > 1,050,901

D. 80,044 < 80,404

**6.** Which of the following numeral makes the sentence **TRUE**?

Two milliard, three hundred forty-five thousand < ____

A. 2,344,000  B. 2,000,345

C. 2,001,345,000  D. 2,000,345,000

**7.** Which of the following numerals is greater than this numeral "3,000,000 + 500,000 + 300 + 70 + 2"?

A. 3,005,372  B. 3,500,732

C. 3,500,273  D. 3,005,732

**8.** Which of the following numerals is less than this numeral "40 million, 900 thousand, 508"?

A. 49,000,508  B. 40,900,508

C. 40,009,580  D. 40,900,580

**9.** Town A's library has three hundred sixty-two thousand, twenty-one books. Town B's library has three hundred twenty-six thousand, one hundred two books. Which choice below correctly compares the number of books in both towns' libraries?

A. 362,021 < 326,102  B. 326,102 = 362,021

C. 362,021 > 326,102  D. 326,102 > 362,021

[Cairo - Heliopolis 22]

Lesson 9

# Descending and Ascending Numbers



## Learn Ordering numbers

The table shows the population of four governorates in Egypt in 2021.

You can order the governorates by their population from greatest to least as follows :



| Governorate | Population |
|---|---|
| Cairo | 10,058,942 |
| North Sinai | 450,528 |
| Alexandria | 5,452,718 |
| Souhag | 5,510,876 |

1. The number 10,058,942 has the most number of digits, so it is the greatest number.

2. The number 450,528 has the least number of digits, so it is the least number.

3. Compare 5,452,718 and 5,510,876 which have the same number of digits.
Check each place until the digits are different.

**Step 1**

Compare the Millions.

5,452,718 ↓ 5,510,876

same number of Millions

**Step 2**

Compare the Hundred Thousands.

5,452,718 ↓ 5,510,876

5 > 4

Then : 5,510,876 > 5,452,718

**From above :**

10,058,942 > 5,510,876 > 5,452,718 > 450,528

- In order of their population the governorates are Cairo, Souhag, Alexandria and North Sinai.

**Notes for parents :**

- Remind your child to start comparison at the greatest place value.

## Example 1

**Write these numbers in an ascending order.**

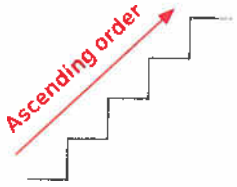
2,896,016 1,188,580 2,517,550

### Solution

| | | |
|---|---|---|
| Step 1 | Write the numbers, lining up places. Determine the smallest number. | 2,896,016<br>1,188,580 ← smallest<br>2,517,550 |
| Step 2 | Write the remaining numbers, lining up places. Compare. | 2,896,016<br>2,517,550 ← smaller |
| Step 3 | Write the numbers from least to greatest. | 1,188,580 2,517,550 2,896,016 |

**Remember**

Ascending order is ordering numbers from least to greatest.




## Example 2

**Write each of the following numerals in standard form, then arrange them in a descending order.**

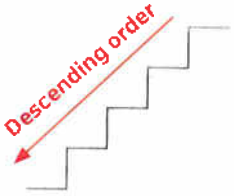
- (7 × 1,000,000,000) + (4 × 10,000,000) + (5 × 1,000) + (3 × 100)
- Seven milliard, four hundred million, one thousand, two
- 7,000,000,000 + 500,000,000 + 600,000 + 300
- 745,300

### Solution

| Standard form | Descendingly |
|---|---|
| 7,040,005,300 | 7,500,600,300 |
| 7,400,001,002 | 7,400,001,002 |
| 7,500,600,300 | 7,040,005,300 |
| 745,300 | 745,300 |

**Remember**

Descending order is ordering numbers from greatest to least.




## Check your understanding

**Arrange the following in a descending order, using the standard form.**

- Three milliard, forty million, seventy-one thousand, ten.
- (3 × 1,000,000,000) + (5 × 1,000,000) + (7 × 1,000) + (1 × 100) + (1 × 10).
- 3,000,000,000 + 30,000,000 + 10
- 3,300,710,400

- If your child has trouble ordering numbers, ask him/her to align the numbers vertically and compare digits left to right.
- Remind your child about the meaning of the two terms ascending order and descending order.

# Exercise 4

on lesson 9

## Descending and Ascending Numbers

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Write the numbers in an ascending order.

a. 7,122,890 , 700,122,089 , 70,122,098 , 7,120,980

The order is : _____ , _____ , _____ , _____

b. 3,452,805 , 3,542,805 , 542,905 , 1,000,000,000

The order is : _____ , _____ , _____ , _____

c. 430,000,459 , 43,000,549 , 403,000,456 , 430,549,000

The order is : _____ , _____ , _____ , _____

**2.** Write the numbers in a descending order.

a. 430,000,459 , 43,000,549 , 403,000,456 , 430,549,000

The order is : _____ , _____ , _____ , _____

b. 6,562,942,735 , 6,942,735 , 6,562,942,375 , 6,942,537

The order is : _____ , _____ , _____ , _____

c. 4,237,651 , 4,273,653 , 495,627 , 4,237,690

The order is : _____ , _____ , _____ , _____

**3.** Write each of the following numerals in standard form and arrange the numerals in an ascending order.

a.
- Three hundred fifty-two thousand, sixty-seven
- 3,052,100
- $[3 \times 100{,}000] + [5 \times 10{,}000] + [2 \times 1{,}000] + [6 \times 100] + [2 \times 10]$
- Three hundred sixty-seven thousand, two hundred one.

| Standard form | Ascending order |
|---|---|
| | |
| | |
| | |
| | |

**b.**
- 3,000,000 + 400,000 + 5,000 + 3
- Three million, four hundred fifty thousand, three
- 3,453,000
- [3 × 1,000,000] + [4 × 100,000] + [5 × 10,000] + [3 × 10]

| Standard form | Ascending order |
|---|---|
| | |
| | |
| | |
| | |

**c.**
- Two milliard, four million, seven hundred thousand
- 2,400,700,000
- [2 × 1,000,000,000] + [4 × 10,000,000] + [7 × 1,000]
- Three milliard

| Standard form | Ascending order |
|---|---|
| | |
| | |
| | |
| | |

**d.**
- Three hundred sixty-two thousand, four hundred ninety-one
- 363,906
- [3 × 100,000] + [6 × 10,000] + [2 × 1,000] + [8 × 100] + [8 × 10]
- 300,000 + 60,000 +4,000 + [9 × 10]
- Three hundred sixty-three thousand, five hundred eighty-nine

| Standard form | Ascending order |
|---|---|
| | |
| | |
| | |
| | |
| | |

**4. Arrange in a descending order, using the forms in which the numbers are written.**

**a.**
- 900 thousands.
- 5 millions and 7 hundred thousands.
- 9 millions.
- 550,223

(Giza - Haram 22)

**The order is :** _____

**b.**
- Nine million, seven hundred thirty-one thousand, seventy.
- 90,731,007
- 9,000,000 + 700,000 + 40,000 + 50
- [9 × 100,000,000] + [8 × 10,000] + [5 × 100]
- Seven hundred million, eighty-four.

**The order is :** _____

c. • 7,000,000,000 + 400,000,000 + 70,000 + 300 + 9

• Seven milliard, fifty-three thousand, seventy-eight.

• 8,000,000,000

• Seven milliard, two hundred million, five

• [7 × 1,000,000,000] + [5 × 100,000,000] + [9 × 100]

**The order is :** _____

d. • [2 × 1,000,000,000] + [5 × 10,000,000] + [3 × 1,000] + [6 × 1]

• Two milliard, five hundred million, two thousand.

• 2,543,269

• Five million, four hundred thousand, seventy-one

• 2,000,000,000 + 2,000,000 + 500

**The order is :** _____

**5.** Create a numeral that is greater than 980,622 and a numeral that is less than 980,622 ,then write the three numerals in an ascending order.

The greater numeral is _____ , the smaller numeral is _____

**The order is :** _____

**6.** Create a numeral that is greater than 8,164,201,404 and a numeral that is less than 8,164,201,404 then write the three numerals in a descending order.

The greater numeral is _____ , the smaller numeral is _____

**The order is :** _____

## Challenge



**7.** The Following numbers are arranged in a descending order :

3,751,924,096 ⟶ 3,751,924,069 ⟶ 3,751,624,096 ⟶ 3,751,624,069

If you replace each 6 by 9 and each 9 by 6, what do you notice ?

# Multiple Choice Questions

**Choose the correct answer.**

**1.** Which of the following shows the numbers in a descending order?

**A.** 580 , 735 , 757 , 573

**B.** 735 , 508 , 573 , 757

**C.** 735 , 757 , 573 , 580

**D.** 757 , 735 , 580 , 573 [Giza - Awseem 22]

---

**2.** Which choice shows the numbers in a descending order?

**A.**
1. 3,456,871
2. 3,578,462
3. 987,541
4. 5,743,261
5. 8,784,561

**B.**
1. 7,456,232
2. 6,785,000
3. 6,670,785
4. 5,700,726
5. 5,700,624

**C.**
1. 5,786,321
2. 5,795,786
3. 5,895,432
4. 6,721,000
5. 7,000,000

**D.**
1. 1,263,572
2. 12,213,573
3. 4,262,563
4. 1,000,000,000
5. 7,865,321,000

---

**3.** Given the following numbers :

a $6 \times 100{,}000 + 4 \times 10{,}000 + 5 \times 1{,}000 + 3 \times 100 + 1 \times 1$

b Six hundred fifty three thousand, three hundred, ten.

c 604,302

d Five hundred eighty-eight thousand, three hundred, ten.

Which choice shows these numbers in an ascending order?

**A.** a , c , b , d

**B.** d , c , a , b

**C.** d , b , a , c

**D.** d , a , c , b

---

**4.** Which of the following digits makes the sentence true? $785 > 7\,\square\,5 > 755$

**A.** 2 **B.** 4 **C.** 6 **D.** 8

---

**5.** The table below shows the average distances from the planets to the Sun.

| Planet | Jupiter | Mars | Venus | Earth |
|---|---|---|---|---|
| Distance from the Sun in km | 778,340,821 | 227,943,000 | 108,209,000 | 149,598,000 |

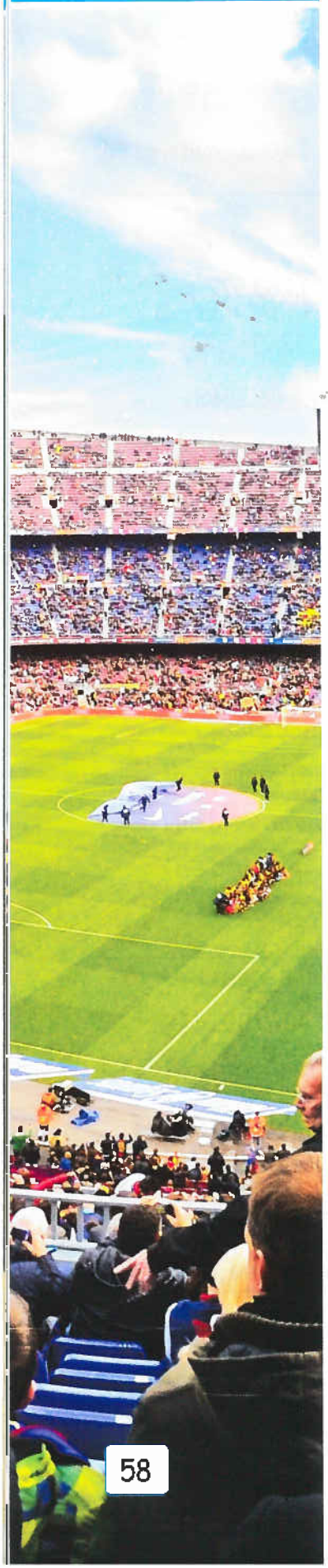
Which planet from above is nearest to the Sun?

**A.** Jupiter **B.** Mars **C.** Venus **D.** Earth

Lesson
10

# Predicting the Unpredictable

Just for Reading



## Learn Front-end strategy of estimation



Ahmed went to the stadium to watch a football match for his favorite team.
The stadium capacity is 72,200 seats.
Ahmed used front-end estimation to expect the number of spectators in this match.
He said the number of spectators was about 70,000.

- In this strategy, you just look at the first digit of the number from the left side, or the highest place value. write the first digit as it is, and change the rest of digits into zeros.

### Example

**Use front-end strategy to estimate.**

| Number | Estimate |
|---|---|
| 87,562 | 80,000 |
| 3,457,426 | 3,000,000 |
| Five milliard, two hundred thousand, five hundred three | 5,000,000,000 |
| 9,000,000,000 + 700,000,000 + 8,000 + 700 + 40 + 5 | 9,000,000,000 |
| Seventy-four million, five hundred twenty-eight | 70,000,000 |

### Check your understanding

**Use front-end strategy to estimate.**

| Number | Estimate |
|---|---|
| 7,845,626 | |
| 86,421,000 | |
| Four milliard, sixty-four million, three hundred thousand, thirty-one | |
| [6 × 100,000,000] + [3 × 10,000,000] + [5 × 1,000,000] + [7 × 1,000] + [2 × 10] | |

**Notes for parents :**

- Tell your child that we use front-end estimation to approximate large numbers.

Lesson
11

# Rounding Rules

## Learn Different ways to round a number

A roller coaster that is 2,181 meters long. About how long is the roller coaster?
Since you do not need an exact number, you can **estimate** by **rounding** the number.



**Different Ways to round 2,181 to the nearest thousand.**

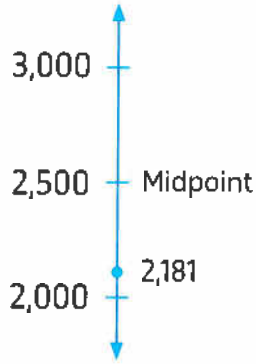
### Way 1 You can use [midpoint strategy].

2,181 is closer to 2,000 than to 3,000

So, round 2,181 to 2,000

Written as 2,181 ≈ 2,000

and read as 2,181 approximately equals 2,000




### Way 2 You can use [place value strategy]

**Step 1**

Find the place you want to round to. Circle the digit in that place.

2,181

Thousands place

**Step 2**

Look at the digit to its right. Underline that digit.

2,181

digit to the right

**Step 3**

- If the underlined digit is 5 or greater, round up.
- If the underlined digit is less than 5, round down.
- Change each digit to the right of the rounding place to 0
- 1 is less than 5, so

2,181 rounds to 2,000

Then, the roller coaster is about 2,000 meters long.

**Notes for parents :**

- Remind your child to round up if the digit to the right of the place value he/she wants to round to is equal to or greater than 5.

## Example 1

**Use midpoint strategy to round each of the following.**

a. 74,231 [to the nearest 1,000]

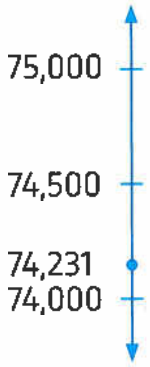
b. 9,360 [to the nearest 100]

### Solution

a. 74,231 is between 74,000 and 75,000

then

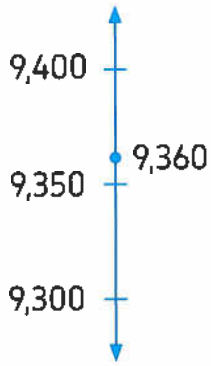
74,231 ≈ 74,000




b. 9,360 is between 9,300 and 9,400

then

9,360 ≈ 9,400




## Example 2

**Use place value strategy to round each of the following.**

a. 2,618 [to the nearest 10]

b. 174,568 [to the nearest 10,000]

c. 3,697,852,721 [to the nearest Ten Million]

d. 7,556,462 [to the nearest Million]

e. 999,999 [to the nearest Ten Thousand]

f. 13,999,999 [to the nearest Hundred]

### Solution

a. 2,6(1)8 ≈ 2,620 (8 > 5)

b. 17(4),568 ≈ 170,000 (4 < 5)

c. 3,69(7),852,721 ≈ 3,700,000,000 (7 > 5)

d. (7),556,462 ≈ 8,000,000 (5 = 5)

e. 99(9),999 ≈ 1,000,000 (9 > 5)

f. 13,99(9),999 ≈ 14,000,000 (9 > 5)

**Rounding Rule :**

Circle the digit, look next door.
5 or higher ? Add one more.
4 or less ? Let it rest.

**Remember**

The digits to the right become zeroes.

**ERROR ALERT**

When you round a 9 to the next greater digit, remember to regroup to the next place value.

## Ckeck your understanding

**Round the following.**

a. 85,721 → (to the nearest 1,000) → _____

b. 3,562,291 → (to the nearest Ten Thousand) → _____

c. 3,895 → (to the nearest Hundred) → _____

d. 9,999,998 → (to the nearest Million) → _____

**Notes for parents :**

- If necessary, allow your child to write the standard form of the number before rounding.

# Exercise 5

on lesson 11

## Rounding Rules

REMEMBER UNDERSTAND APPLY PROBLEM SOLVING From the school book

**1.** Round the numbers to the nearest Ten.

a. 423 ≈ _____ b. 549 ≈ _____ c. 495 ≈ _____ d. 1,287 ≈ _____

**2.** Round the numbers to the nearest Hundred.

a. 874 ≈ _____ b. 416 ≈ _____ c. 4,398 ≈ _____ d. 1,952 ≈ _____

**3.** Round the numbers to the nearest Thousand.

a. 8,090 ≈ _____ b. From the school book 234,432 ≈ _____

c. 9,900 ≈ _____ d. From the school book 7,578 ≈ _____

**4.** Round the numbers to the nearest Ten Thousand.

a. 37,205 ≈ _____ b. 58,936 ≈ _____

c. From the school book 290,290 ≈ _____ d. From the school book 7,435,026,353 ≈ _____

**5.** Round the numbers to the nearest Hundred Thousand.

a. 483,267 ≈ _____ b. 678,090 ≈ _____

c. 449,300 ≈ _____ d. 12,786,500 ≈ _____

**6.** Round the numbers to the nearest Million.

a. From the school book 5,367,544 ≈ _____ b. 20,843,267 ≈ _____

c. 135,984,600 ≈ _____ d. From the school book 2,453,000,601 ≈ _____

**7.** From the school book Round the numbers to the nearest Milliard.

a. 5,266,747,023 ≈ _____ b. 10,944,352,543 ≈ _____

**8.** Round each number to the nearest Ten, Thousand, Hundred Thousand, and Million.

| Numbers | Nearest Ten | Nearest Thousand | Nearest Hundred Thousand | Nearest Million |
|---|---|---|---|---|
| a. 1,657,809 | | | | |
| b. 2,709,365 | | | | |
| c. 16,442,896 | | | | |
| d. 8,851,342 | | | | |

**9.** Put (✓) to the correct statement or (✗) to the incorrect statement.

a. Rounding the number : 8,532 to the nearest 1,000 is approximately 8,000. [Giza - 6th October 22] [ ]

b. Rounding the number : 3,476,421 to the nearest million is approximately 3 millions. [ ]

c. Rounding the number : 4,764,296 to the nearest Hundred thousands is approximately 4,800,000. [ ]

d. Rounding the number : 3,315,462,290 to the nearest milliard is approximately 3,000,000. [ ]

e. Rounding the number : 99,999 to the nearest 10,000 is approximately 100,000. [ ]

**10.** Complete.

a. The number 543,186, approximate to the nearest thousand ____ [Cairo - Heliopolis 22]

b. The number 163,518,943 to the nearest million is ____ [Matrouh 22]

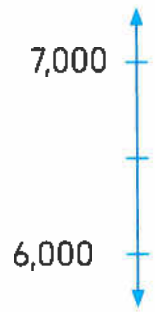
c. The number 3,562,129,364 to the nearest milliard is ____

d. The number 2,956 to the nearest 1,000 is ____

e. The number 999,999 to the nearest hundred thousand is ____

**11.** Round each of the following by using the midpoint strategy, record the midpoint of the number line and the place of each number, then round to the nearest thousand.

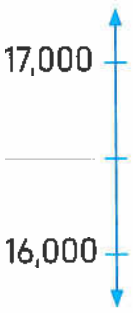
a. 6,700 ≈ ____



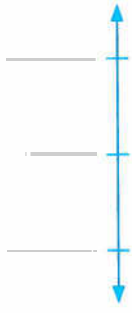

b. 9,340 ≈ ____




c. 16,401 ≈ ____




d. 342,351



**12.** **Draw the number line, label the midpoint, and then round each of the following numbers.**

**a.** 250,000 (to the nearest Hundred Thousand)

**b.** 700,500 (to the nearest Hundred Thousand)

**c.** 362,261 (to the nearest Ten Thousand)

**d.** 36,951 (to the nearest Hundred)

**13.** Write 5 numbers if rounded to the nearest Thousand the result is 312,000.

**14.** A plane's altitude increased by 2,721 metres.
Round this number to the nearest Thousand.

**15.** A runner ran 1,537 metres, but he discribes the distance he ran with a rounded number.
Round 1,537 to the nearest Hundred.

**16.** A record number of 23,386 ants lives in colony A.
Round this number to the nearest Ten Thousands.



## Challenge

**17.** What is the greatest whole number that rounds to 300,000 ? What is the least ?

# Multiple Choice Questions

**Choose the correct answer.**

**1.** Round 387,932 to the nearest Hundred.

A. 387,900 B. 388,000
C. 387,930 D. 390,000

**2.** Round 6,749,001,551 to the nearest Milliard. [Beni Suef 22]

A. 6,000,000,000 B. 7,000,000,000
C. 6,700,000,000 D. 8,000,000,000

**3.** Rounding the number 34,089 to the nearest Ten Thousand is _____ [El-Sharkia 22]

A. 34,000 B. 34,090
C. 30,000 D. 35,000

**4.** Which answer represents rounding 32,582,346 to the nearest Million ? [Suez 22]

A. 30,000,000 B. 32,600,000
C. 32,000,000 D. 33,000,000

**5.** Sameh rounded a number and got 340. Which number could have been his original number ?

A. 336 B. 347
C. 350 D. 349

**6.** The number that shows 1,236,532,748 rounded to the Ten Millions place is _____

A. 1,220,000,000 B. 1,230,000,000
C. 1,240,000,000 D. 1,250,000,000

**7.** Which number colud be rounded to 120,000 when rounded to the nearest Ten Thousand ?

A. 125,678 B. 116,034
C. 112,625 D. 20,789

**8.** Which number could be rounded to 430,000 when rounded to the nearest Ten Thousand ?

A. 328,782 B. 437,651
C. 435,826 D. 432,198

**9.** The expression that expresses the correct approximation is _____

A. 3,100 is rounding 3,191 to the nearest Hundred
B. 210 is rounding 201 to the nearest Ten
C. 4,000 is rounding 3,535 to the nearest Thousand
D. 6,000,000 is rounding 5,006,666 to the nearest Million

**10.** What is the largest number can be rounded to 2,500 when rounded to the nearest Hundred ?

A. 2,450 B. 2,551 C. 2,549 D. 2,499

# Unit One Assessment




**1. Choose the correct answer.**

a. The largest 5-digit number is _____

A. 10,000 B. 100,000 C. 99,999 D. 98,765

b. 100,000 is _____ times the number 10,000.

A. 10 B. 100 C. 1,000 D. 10,000

c. What is the standard form for three milliard, seven hundred thirty-five thousand, fifty ?

A. 3,735,000,050 B. 3,735,500

C. 3,000,735,050 D. 3,735,050

d. Which is the compose to $[8 \times 100{,}000] + [4 \times 1{,}000] + [7 \times 100] + [1 \times 10]$ ?

A. 804,710 B. 840,710 C. 804,170 D. 840,701

e. 3,752,000 _____ three milliard,twenty

A. > B. < C. =

f. Which number rounded to 5,000,000 when rounded to the nearest Million ?

A. 4,754,216 B. 4,261,562

C. 5,642,721 D. 5,810,000

**2. Complete the following.**

a. The value of the digit 4 in the number 3,452,631,901 is _____

b. 1,732,053,000 in word form is _____

_____

c. 80,000,000 + 124,000 + 650 = _____

d. 735,462 ≈ _____ [Rounded to the nearest Ten Thousand]

e. 3,504,800,501 in expanded for is _____

f. 5,856,469 ≈ 5,900,000 [Rounded to the nearest _____ ]

**3.** Put (✓) to the correct statement or (X) to the incorrect statement.

a. 800 thousands = 8 millions [ ]

b. 30,000 + 7,000 + 30 + 4 = 3,734 [ ]

c. The compose of number [8 × 100,000] + [5 × 1,000] + [5 × 100] + [4 × 10] is 85,540 [ ]

d. 500,000 + 20,000 + 30 + 4 > 90,000 + 8,000 + 60 + 9 [ ]

e. The place value of the digit 5 in the number 9,008,527,314 is Hundred Thousands. [ ]

f. The smallest 5-different digits number is 12345 [ ]

**4.** Match the cards that have the same number.

| | | | |
|---|---|---|---|
| a. | [7 × 10,000] + [4 × 100] + [8 × 10] + [9 × 1] | 1. | seven milliard, four hundred million, eight hundred ninety |
| b. | 7,400,000,890 | 2. | seven million, four hundred thousand, eighty-nine |
| c. | 7,000,000 + 400,000 + 80 + 9 | 3. | 7,000,040,890 |
| d. | 7 milliard, 40 thousand, 890 | 4. | seventy thousand, four hundred eighty-nine |

**5.** Use the digits 7,4,2,0,3,5,6,8 to make the greatest number you can. Then use the same digits to make the smallest number you can and round each number to the nearest Million.

**6.** Arrange in an ascending order, using the forms in which the numbers are written.

- [7 × 1,000,000] + [5 × 100,000] + [4 × 1,000] + [2 × 100] + [3 × 10]
- Seven million, five hundred forty thousand, two hundred three.
- 7,000,000 + 500,000 + 40,000 + 2,000 +3
- 75,423
- Seven million, fifty thousand, thirty.

**7.** Round 664,418

a. to the nearest Ten _____ b. to the nearest Ten Thousand _____

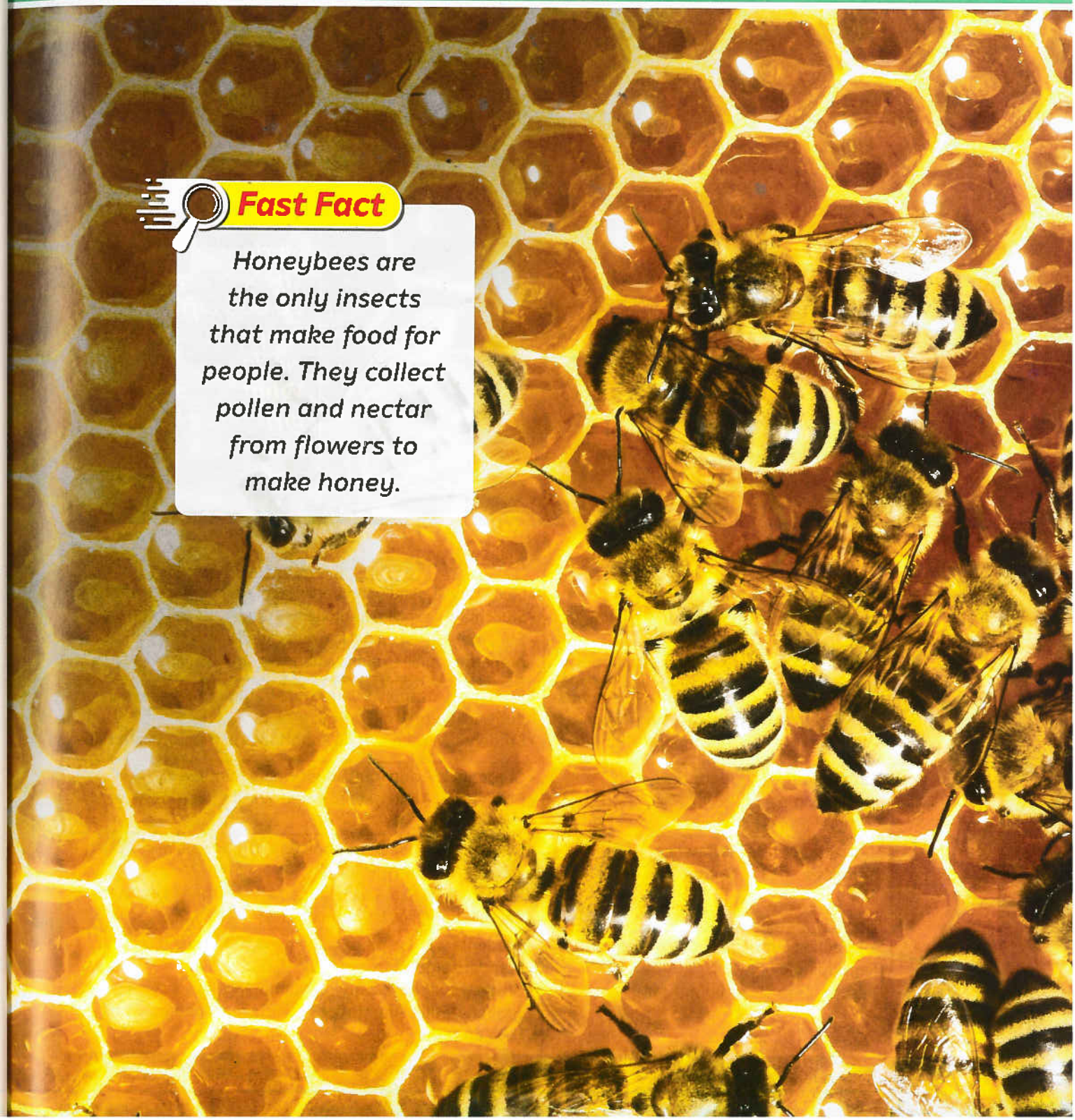
Theme 1 | Number Sense and Operations

UNIT 2

# Addition and Subtraction Strategies

» **Concept 1 :** Using Addition and Subtraction Strategies

» **Concept 2 :** Solving Multistep Problems



**Fast Fact**

*Honeybees are the only insects that make food for people. They collect pollen and nectar from flowers to make honey.*

Concept 1

# Using Addition and Subtraction Strategies





**Fast Fact**

*There are over 12,000 ant species worldwide. There are about 20,000 different species of bees in the world.* ***What is the difference between them ?!***

| Lesson No. | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
| Lesson 1 | Properties of Addition | Additive identity property - Associative property - Commutative property | • Students will identify the properties of addition and subtraction.<br>• Students will explain the properties of addition and subtraction.<br>• Students will investigate to determine whether addition properties apply to subtraction. |
| Lesson 2 | Review Mental Math Strategies | Benchmark - Estimate - Mental Math - Round - Subtrahend - Minuend. | • Students will apply a variety of strategies to add and subtract mentally.<br>• Students will explain the importance of mental math skills. |
| Lesson 3 | Addition with Regrouping | Algorithm | • Students will add multi-digit whole numbers.<br>• Students will estimate to determine if their answer is reasonable. |
| Lessons 4&5 | Subtraction Strategies | Difference - Subtrahend - Minuend | • Students will use decomposition of numbers to subtract multidigit whole numbers.<br>• Students will explain the importance of finding patterns and relationships in mathematics. |
| | Subtraction with Regrouping | Algorithm - Regroup | • Students will use place value to help subtract using the standard algorithm.<br>• Students will subtract with regrouping.<br>• Students will estimate to check the reasonableness of their answers. |

Lesson 1

# Properties of Addition



## Learn What are the addition properties ?

Addition properties are rules for addition that are always true.

- Commutative property.
- Identity property.
- Associative property.

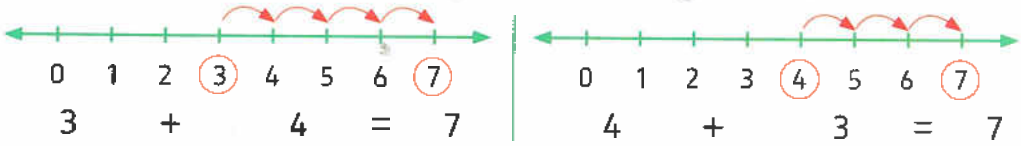


### Commutative Property of Addition

**Maged saw 3 birds on Monday and 4 birds on Tuesday.**

**How many birds did he see in all ?**

You can add numbers in any order and get the same sum.




So, $3+4=4+3$ . Maged saw 7 birds.

### Identity Property of Addition

**Maged saw 8 fish. Shady did not see any. How many fish did the boys see in all ?**

If you add zero to any number, the sum is that number.

$$8+0=8 \qquad 0+8=8$$

So, the boys saw 8 fish in all.

### Associative Property of Addition

**Maged collected 7 brown shells, 4 white shells, and 6 gray shells.**

**How many shells did he collect in all ?**

You can group addends in different ways, and the sum will be the same.

$$\begin{aligned} &(7+4)+6 \\ =\ &11+6 \\ =\ &17 \end{aligned} \qquad \begin{aligned} &7+(4+6) \\ =\ &7+10 \\ =\ &17 \end{aligned}$$

So, $(7+4)+6=7+(4+6)$ .

Maged collected 17 shells in all.

MATH IDEA

Parentheses ( ) show which numbers to add first.

**Notes for parents :**

- Let your child give you more examples for each property and ask him/her to explain what each property states.

## Example 1

**Find the missing number, and name the property you used.**

a. $12 + 64 =$ ——— $+ 12$ [———]

b. $14 = 0 +$ ——— [———]

c. $(1 + 19) + 11 = 1 + (19 +$ ——— $)$ [———]

d. $90 +$ ——— $= 90$ [———]

### Solution

a. 64 [commutative property]

b. 14 [additive identity property]

c. 11 [associative property]

d. 0 [additive identity property]

## Example 2

**Solve each problem, and name the property you used.**

a. $12 + 28 + 30$

b. $16 + 9 + 4$

c. $12 + 28 + 15 + 35$

### Solution

a. $12 + 28 + 30$ Use the associative
$= (12 + 28) + 30$ property to group
$= 40 + 30$ numbers that are
$= 70$ easy to add mentally.

b. $16 + 9 + 4$
$= 16 + 4 + 9$ [commutative property]
$= (16 + 4) + 9$ [associative property]
$= 20 + 9 = 29$

c. $12 + 28 + 15 + 35$
$= (12 + 28) + (15 + 35)$ [associative property]
$= 40 + 50 = 90$

## Check your understanding

**Solve the problems, then name the property or properties illustrated by each problem** [commutative, associative or additive identity].

a. $(8 + 2) + 6 =$ ——— Property : ———

b. $7{,}635 + 0 =$ ——— Property : ———

c. $39 + (20 + 40) =$ ——— Property : ———

d. $17 + 23 + 3 =$ ——— Property : ———

e. $136 + 37 + 13 + 14 =$ ——— Property : ———

**Notes for parents :**

- Let your child know that he/she could use more than one property to solve a problem.

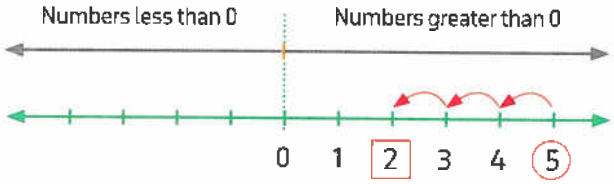
# Do the addition properties apply to subtraction ?

**Note**

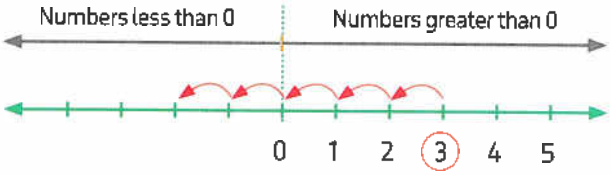
You will study the numbers less than 0 later in coming years.

## ▸ Is 5 - 3 the same as 3 - 5 ?

You can use the number line to answer.




**5 - 3 = 2**




**3 - 5** = a number less than 0

From the above : $5 - 3 \neq 3 - 5$ [**The differences are NOT the same**]

You can not subtract numbers in any order and get the same difference.
So, commutative property of addition ***does not apply*** to subtraction.

## ▸ Subtraction has no identity.

There is no number you can subtract from any number, or subtract any number from it, the difference is that number.

## ▸ Is [5 - 3] - 2 the same as 5 - [3 - 2] ?

$[5 - 3] - 2 = 2 - 2$

$= 0$

$5 - [3 - 2] = 5 - 1$

$= 4$

From the above : $[5 - 3] - 2 \neq 5 - [3 - 2]$ [**The differences are NOT the same**]

You can not group in different ways, and the difference will be the same.
So, associative property of addition ***does not apply*** to subtraction.



• Ask your child to create a subtraction problem to investigate if the addition properties apply to subtraction. Let your child explain using words.

# Exercise 6

on lesson 1

## Properties of Addition

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Choose the correct property.

a. $(12 + 8) + 7 = 12 + (8 + 7)$ [Additive identity - Commutative - Associative]

b. $9 + 21 = 21 + 9$ [Additive identity - Commutative - Associative]

c. $(45 + 5) + 10 = 45 + (5 + 10)$ [Additive identity - Commutative - Associative]

d. $0 + 5{,}274 = 5{,}274$ [Additive identity - Commutative - Associative]

e. $26 + 10 + 34 = 26 + 34 + 10$ [Additive identity - Commutative - Associative]

**2.** Complete to find the sum.

a. $15 + 5 = 5 +$ ____ = ____

[____ property]

b. $2{,}514 + 0 =$ ____

[____ property]

c. $92 + 321 + 8 = 92 + 8 + 321$

[____ property]

$= [$____ + ____$] + 321$

[____ property]

= ____ + ____ = ____

d. $1 + 16 + 4$

$= 1 + (16 +$ ____$)$

[____ property]

$= 1 +$ ____ = ____

e. $199 + 1 + 40$

$= [$ ____ $+ 1] + 40$

[____ property]

= ____ + ____ = ____

f. $5 + 7 + 8 + 3$

$= 5 + 8 + 7 + 3$

[____ property]

$= [$____ + ____$] + [$____ + ____$]$

[____ property]

= ____ + ____ = ____

g. $37 + 40 + 3$

$= 37 +$ ____ $+ 40$

[____ property]

$= [$____ + ____$] +$ ____

[____ property]

= ____ + ____ = ____

h. $35 + 100 + 65$

$= 35 + 65 +$ ____

[____ property]

$= [$____ + ____$] +$ ____

[____ property]

= ____ + ____ = ____

**3.** Solve the following problems using the associative property. Remember to solve what is in the parentheses first.

| | | | |
|---|---|---|---|
| a. | $(75 + 25) + 46$<br>$= 100 + 46 = 146$ | $75 + (25 + 46)$<br>$=$ _____ | $(75 + 46) + 25$<br>$=$ _____ |
| b. | $(10 + 4) + 20 + 17$<br>$=$ _____ | $10 + (4 + 20) + 17$<br>$=$ _____ | $10 + 4 + (20 + 17)$<br>$=$ _____ |
| c. | $(92 + 328) + 51 + 9$<br>$=$ _____ | $92 + (328 + 51) + 9$<br>$=$ _____ | $92 + 328 + (51 + 9)$<br>$=$ _____ |
| d. | $(820 + 78) + 12 + 80$<br>$=$ _____ | $820 + (78 + 12) + 80$<br>$=$ _____ | $(820 + 80) + (78 + 12)$<br>$=$ _____ |

**4.** Find each sum in two different ways. Use parentheses to show which numbers you add first.

a. $8 + 9 + 1$

b. $30 + 70 + 15$

c. $11 + 26 + 34$

d. $220 + 88 + 80$

e. $12 + 28 + 30 + 25$

f. $516 + 59 + 34 + 111$

**5.** Put (✓) to the correct statement or (✗) to the incorrect statement.

a. The subtraction is a commutative process. [Cairo - Zeitoun 22] [ ]

b. The property $395 + 0 = 395$ is called additive identity property. [Cairo - 22] [ ]

c. The additive identity is 1 [ ]

d. You can group addends in different ways, and the sum will be the same. [ ]

e. $3{,}561 + 5{,}006 = 5{,}006 + 3{,}561$ [ ]

f. $7{,}001 - 3{,}561 = 3{,}561 - 7{,}001$ [ ]

g. $2{,}354 + 0 = 2{,}354 - 0$ [ ]

h. $(736 + 264) + 100 = 736 + (264 + 100)$ [ ]

**6.** Solve the problems and circle the property (or properties) you used to solve the problems. Then, write your own problem showing the same property and using the same numbers.

| | Circle one | Problem | Solve | Write your own |
|---|---|---|---|---|
| a. | Associative<br>Commutative<br>Additive identity | $7 + 3 + 5$ | | |
| b. | Associative<br>Commutative<br>Additive identity | $15 + 20 + 13$ | | |
| c. | Associative<br>Commutative<br>Additive identity | $40 + 21 + 36$ | | |
| d. | Associative<br>Commutative<br>Additive identity | $0 + 4{,}502$ | | |
| e. | Associative<br>Commutative<br>Additive identity | $200 + 0 + 43$ | | |
| f. | Associative<br>Commutative<br>Additive identity | $421 + 9 + 29$ | | |

## Challenge

**7.** Sara needs to find the sum of 24 , 35 , 105 and 66.
How can she group the addends to make it easier to add ?
Write the property used in each step.



# Multiple Choice Questions

Choose the correct answer.

**1.** Which of the following represents the commutative property in addition ? [El-Fayoum 22]

A. $635 + 492 = 492 + 635$

B. $0 + 847 = 847$

C. $[18 + 2] + 16 = 36$

D. $1 + 131 = 132$

**2.** $13 + 0 = 13$, is _____ property. [Assiut - Manfalout 22]

A. Assocciative

B. Commutative

C. Additive identity

D. None of the above

**3.** Gamal wrote $[13 + 7] + 41 = 13 + [7 + 41]$ using the _____ property of addition.

A. additive identity

B. commutative

C. associative

**4.** Which equation would be best to include in an explanation of the commutative property of addition ? [El-Menia - Matay 22]

A. $8 + 0 = 8$

B. $7 + 8 = 8 + 7$

C. $3 + 18 = 3 + 11 + 7$

D. $5 + 8 = 3 + 10$

**5.** Esslam wrote the statement

$10 + 5 + 20 = [10 + 20] + 5$

Which properties of addition did he use ? [Select two correct answer].

A. Additive identity

B. Commutative

C. Associative

**6.** Hayam writes $22 - [10 + 1] = [22 - 10] + 1$. Is the statement true ?

Choose the answer below that also includes the best explanation.

A. Yes, because the associative property applies to subtraction.

B. Yes, because the commutative property applies to subtraction.

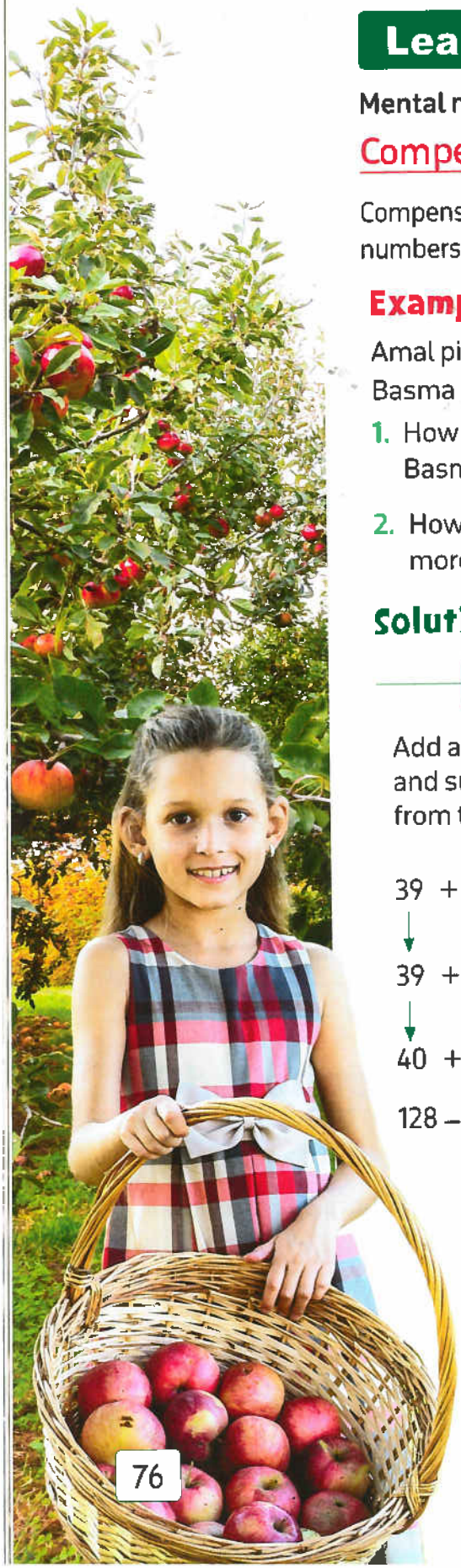
C. No, because the associative property does not apply to subtraction.

D. No, because the commutative property does not apply to subtraction.

Lesson 2

# Review Mental Math Strategies

Just for Reading



## Learn

**Mental math strategies can help you add and subtract.**

### Compensation Strategy

Compensation can be used to Make a Benchmark to find the sum of two numbers, and the difference between them mentally.

### Example 1

Amal picked 88 red apples.
Basma picked 39 green apples.

1. How many apples did Amal and Basma pick in all?
2. How many apples did Amal pick more than Basma?



### Solution

**1. To find 39 + 88**

Add an amount to one number and subtract the same amount from the sum.

39 + 88

↓

39 + 1 *Add 1 to 39.*

↓

40 + 88 = 128

128 – 1 = 127 *Subtract 1 from the answer to compensate.*

Amal and Basma picked 127 apples.

**2. To find 88 – 39**

Add an amount to subtrahend and add the same amount to the difference.

88 – 39

↓

39 + 1 *Add 1 to 39.*

↓

88 – 40 = 48

48 + 1 = 49 *Since you subtracted 1 more than you should have, you must add 1 to 48 to compensate.*

Amal picked 49 apples more than Basma.

**Notes for parents :**

- Let your child recognize the importance of being able to add or subtract using mental math.

## Break Up and Bridge Strategy

This strategy depends on breaking up numbers into numbers that are easier to add or subtract mentally.

### Example 2

**Find each result using mental math.** a. 58 + 26 b. 78 – 35

**Solution**

a. • Break up both numbers into tens and ones.

58 = 50 + 8

⊕

26 = 20 + 6

Add tens and ones: 70 + 14 = 84

**So, 58 + 26 = 84**

**Another Way**

• Break up only the 26.

26 = 20 + 6

• Add 20 to 58: 58 + 20 = 78

• Add 6 to 78: 78 + 6 = 84

**So, 58 + 26 = 84**

b. • Break up both numbers into tens and ones.

78 = 70 + 8

⊖

35 = 30 + 5

Subtract tens and ones: 40 + 3 = 43

**So, 78 – 35 = 43**

**Another Way**

• Break up only the 35.

35 = 30 + 5

• Subtract 30 from 78: 78 – 30 = 48

• Subtract 5 from 48: 48 – 5 = 43

**So, 78 – 35 = 43**

## Add to Subtract Strategy

Add to subtract strategy states that count up from the subtrahend to the minuend.

### Example 3

**Find.** 93 – 78

**Solution**

78 + 2 = 80

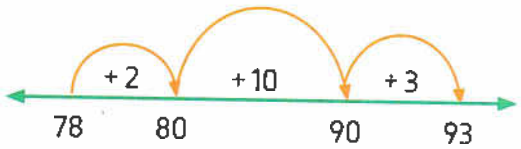
80 + 10 = 90

90 + 3 = 93

So, 2 + 10 + 3 = 15

**Then:** 93 – 78 = 15

**Another Way**




93 – 78 = 2 + 10 + 3

= 15

• Ask your child to find the sum of 39 + 24 mentally and let him/her explain the steps in words.

• Let your child find [276 – 155] mentally using at least two strategies and explain the steps.

## Front-End Estimation Strategy

Front-End Estimation states that add or subtract only the largest place values in each number to produce an estimate [that may not be close to the actual answer].

### Example 4

**Estimate to find the results.** a. 573 + 228 b. 176 – 82

### Solution

a.
$$\begin{array}{rcl} 573 & \longrightarrow & 500 \\ +\ 228 & \longrightarrow & +\ 200 \\ \hline & & 700 \end{array}$$

b.
$$\begin{array}{rcl} 176 & \longrightarrow & 100 \\ -\ 82 & \longrightarrow & -\ 80 \\ \hline & & 20 \end{array}$$

## Rounding Strategy

Rounding strategy states that select one place value for each number. Determine which multiple of 10 , 100 or 1,000 (and so on) it is closest to, and then add or subtract for a more accurate estimate.

### Example 5

**Round to find the results.** a. 1,020 + 861 b. 267 – 83

### Solution

a.
$$\begin{array}{rcl} 1{,}020 & \xrightarrow{\text{Round to 100}} & 1{,}000 \\ +\ 861 & \xrightarrow{\text{Round to 100}} & +\ 900 \\ \hline & & 1{,}900 \end{array}$$

b.
$$\begin{array}{rcl} 267 & \xrightarrow{\text{Round to 10}} & 270 \\ -\ 83 & \xrightarrow{\text{Round to 10}} & -\ 80 \\ \hline & & 190 \end{array}$$

*Note that :*

*Rounding strategy is a more accurate estimation to the actual results more than front-end estimation strategy.*

### Check your understanding

**Add or subtract mentally. Tell the strategy you used.**

| | | |
|---|---|---|
| a. 27 + 31 | b. 212 + 107 | c. 993 + 19 |
| d. 78 – 15 | e. 116 – 97 | f. 576 – 391 |

• Tell your child that front-end estimation and rounding strategy do not give the exact answer.

Lesson 3

# Addition with Regrouping



## Learn

Mr. Faried has 129 kids toys.
He plans to buy 97 more toys.
How many toys will he have altogether?



**Add.** 129 + 97

**Estimate.** 100 + 100 = 200 (Numbers are rounded to the nearest 100)

**Step 1**

Add ones.

9 + 7 = 16

$$\begin{array}{r} {\scriptstyle ①\ \ \ } \\ 129 \\ +\ 97 \\ \hline 6 \end{array}$$

Regroup 16 ones as 1 ten 6 ones

**Step 2**

Add tens.

1 + 2 + 9 = 12

$$\begin{array}{r} {\scriptstyle ①①\ \ } \\ 129 \\ +\ 97 \\ \hline 26 \end{array}$$

Regroup 12 tens as 1 hundred 2 tens

**Step 3**

Add hundreds.

1 + 1 = 2

$$\begin{array}{r} {\scriptstyle ①①\ \ } \\ 129 \\ +\ 97 \\ \hline 226 \end{array}$$

Mr. Faried will have 226 toys, and the answer is close to the estimate.
So, 226 is **reasonable**.

## Example 1

**Round the addends to the nearest given estimation. Find the sum.**

a. 34 + 88 (Round to the nearest 10)

b. 658 + 135 (Round to the nearest 100)

c. 5,195 + 3,761 (Round to the nearest 1,000)

### Solution

a.

$$\begin{array}{r} {\scriptstyle ①\ \ } \\ 34 \\ +\ 88 \\ \hline 122 \end{array} \quad \begin{array}{c} \text{Round to 10} \\ \longrightarrow \\ \longrightarrow \end{array} \quad \begin{array}{r} 30 \\ +\ 90 \\ \hline 120 \end{array}$$

The answer is reasonable.

b.

$$\begin{array}{r} {\scriptstyle ①\ \ } \\ 658 \\ +\ 135 \\ \hline 793 \end{array} \quad \begin{array}{c} \text{Round to 100} \\ \longrightarrow \\ \longrightarrow \end{array} \quad \begin{array}{r} 700 \\ +\ 100 \\ \hline 800 \end{array}$$

The answer is reasonable.

c.

$$\begin{array}{r} {\scriptstyle ①\ \ \ \ } \\ 5,195 \\ +\ 3,761 \\ \hline 8,956 \end{array} \quad \begin{array}{c} \text{Round to 1,000} \\ \longrightarrow \\ \longrightarrow \end{array} \quad \begin{array}{r} 5,000 \\ +\ 4,000 \\ \hline 9,000 \end{array}$$

The answer is reasonable.

**Notes for parents :**

- Ask your child to find the sum of 3,659 and 1,783, then use rounding to estimate and check if the answer is reasonable or not.

## Example 2

**Estimate using rounding to the nearest Ten Thousand, Thousand, Hundred and Ten to check the reasonableness of the answer. Find the exact answer.**

**12,548 + 48,681**

## Solution

**Round to nearest 10,000**

10,000
+ 50,000
60,000

**Round to nearest 1,000**

① 13,000
+ 49,000
62,000

**Round to nearest 100**

①① 12,500
+ 48,700
61,200

**Round to nearest 10**

①①① 12,550
+ 48,680
61,230

**Exact answer**

①①① 12,548
+ 48,681
61,229



**Notes**

The exact answer is more reasonable to estimation using rounding to the nearest Ten than rounding to the nearest other place values.

## Check your understanding

**1. Find the Addition with Regrouping.**

a. 3,571 + 2,989 = ____

b. 74,398 + 68,622 = ____

c. 7,354 + 906 = ____

d. 45,238 + 15,762 = ____

**2. Find the exact sum. Estimate using rounding to check the reasonableness of the answer.**

a. 319 + 63 → Round to 100 → ____ + ____ = ____

b. 2,723 + 3,286 → Round to 1,000 → ____ + ____ = ____

c. 42,401 + 17,923 → Round to 10,000 → ____ + ____ = ____

**Notes for parents :**

- Let your child create an addition problem and let him/her solve it to find the exact answer, then use rounding to check the reasonableness of the answer.

# Exercise 7

on lesson 3

## Addition with Regrouping

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Estimate using rounding to the nearest Ten. Find the exact answer.

a. 19 + 32 → ___ + ___ → ___ + ___ = ___

b. 351 + 286 → ___ + ___ → ___ + ___ = ___

c. 1,578 + 4,121 → ___ + ___ → ___ + ___ = ___

**2.** Estimate using rounding to the nearest Hundred. Find the exact answer.

a. 726 + 89 → ___ + ___ → ___ + ___ = ___

b. 134 + 588 → ___ + ___ → ___ + ___ = ___

c. 34,762 + 21,384 → ___ + ___ → ___ + ___ = ___

**3.** Estimate using rounding to the nearest Thousand. Find the exact answer.

a. 3,355 + 809 → ___ + ___ → ___ + ___ = ___

b. 26,721 + 45,398 → ___ + ___ → ___ + ___ = ___

c. 85,632 + 1,168 → ___ + ___ → ___ + ___ = ___

**4.** Round to estimate the sums. Then, solve the problems to find the exact answer. Show your work.

a. 593 + 194 → ___ + ___ → ___ + ___ = ___

b. 579 + 62 → ___ + ___ → ___ + ___ = ___

c. 3,975 + 8,062 → ___ + ___ → ___ + ___ = ___

d. 8,049 + 6,199 → ___ + ___ → ___ + ___ = ___

e. 34,013 + 9,340 → ___ + ___ → ___ + ___ = ___

f. 3,520 + 2,401 → ___ + ___ → ___ + ___ = ___

**5.** Find the exact sum. Estimate using rounding as the examples.

▶ **Examples :** • ① 5,432 + 1,296 = 6,728

5,400 + 1,300 = 6,700

• ①①① 17,686 + 5,342 = 23,028

①①① 17,690 + 5,340 = 23,030

a. 17 + 69 = ____

____ + ____ = ____

b. 523 + 387 = ____

____ + ____ = ____

c. 4,584 + 2,428 = ____

____ + ____ = ____

d. 69,210 + 26,428 = ____

____ + ____ = ____

e. 25,749 + 175,684 = ____

____ + ____ = ____

f. 259,111 + 9,999 = ____

____ + ____ = ____

g. 123,965 + 986,035 = ____

____ + ____ = ____

h. 58,712 + 81,475 + 42,358 = ____

____ + ____ + ____ = ____

**6.** Find the sum. Compare using (> , < or =).

a. 65 + 17 ◯ 38 + 43

b. 290 + 530 ◯ 732 + 88

c. 3,984 + 1,079 ◯ 894 + 4,117

d. 5,182 + 957 ◯ 3,777 + 2,350

e. 90,652 + 21,911 ◯ 37,888 + 84,675

f. 54,186 + 11,983 ◯ 25,649 + 40,515

**7.** Round to estimate the sum. Then solve the problems and find the exact sum. Show your steps.

a. A bridge of ants consists of 142 ants, and another bridge consists of 165 ants. How many ants are there in the two bridges together ?



[El-Behiera - Damnhour 22]

b. Sandra collected 139 cans to recycle.Hani collected 242 cans.
How many cans were collected.



Round to the nearest Ten.

**Estimate :** _____

**Exact :** _____

c. In a week 6,923 tourists visited Karnak temple, and in the next week 7,679 tourists visited it.
How many tourists visited the temple in the two weeks ?



Round to the nearest Ten.

**Estimate :** _____

**Exact :** _____

d. The country has provided a vaccination against the Corona virus. In the first stage, 1,653,465 people were vaccinated and 3,312,447 in the second stage. What is the total number of people vaccinated in both stages ?



**Estimate :** _____

**Exact :** _____

[Giza – Dokki 22]

e. A Saharan silver ant is the fastest ant on the planet. It can move about 855 mm a second. If this ant could maintain this speed for 2 seconds, how far would it go ?



**Estimate :** _____

**Exact :** _____

f. Abeer and Ehab are traveling from Aswan to Alexandria. They will travel 514 km on the first day to Asyut. They will travel 597 km from Asyut to Alexandria on the second day. How many kilometers will they travel in all ?



Estimate : _____

Exact : _____

## Challenge

8. Complete the missing digits.

a.

| | | | | | | |
|---|---|---|---|---|---|---|
| | 7 | □ | , | 3 | 4 | □ |
| + | □ | 2 | , | □ | 2 | 5 |
| | 9 | 8 | , | 6 | □ | 8 |

b.

| | | | | | | |
|---|---|---|---|---|---|---|
| | 2 | □ | , | 3 | 8 | □ |
| + | □ | 9 | , | 5 | □ | 4 |
| | 8 | 4 | , | □ | 2 | 5 |

# Multiple Choice Questions

**Choose the correct answer.**

**1.** Which one is the sum of $\begin{array}{r} 352 \\ +\ 269 \end{array}$ ?

A. 117
B. 118
C. 621
D. 622

**2.** 91,024 + 32,549 = _____

A. 123,563
B. 123,673
C. 122,563
D. 123,573

[Giza – Haram 22]

**3.** Which one is the sum of $\begin{array}{r} 4,568 \\ +\ 2,715 \end{array}$ ?

A. 2,253
B. 6,283
C. 7,273
D. 7,283

**4.** Which one is the sum of $\begin{array}{r} 58,607 \\ +\ 24,654 \end{array}$ ?

A. 83,053
B. 83,261
C. 83,361
D. 83,853

**5.** 3,425 + 4,768 = 193 + _____

A. 8
B. 80
C. 800
D. 8,000

**6.** 31,632 + 62,435 = _____

A. 67 + 94
B. 67 + 940
C. 67 + 9,400
D. 67 + 94,000

**7.** Which one is the correct rounding to estimate the answer to 192 + 266 ?

A. 100 + 200 = 300
B. 200 + 200 = 400
C. 100 + 300 = 400
D. 200 + 300 = 500

**8.** Which one is the correct rounding to estimate the sum of 1,564 + 387?

A. 1,500 + 300 = 1,800
B. 1,500 + 400 = 1,900
C. 1,600 + 400 = 2,000
D. 1,600 + 500 = 2,100

**9.** Which has the same sum as 654 + 1,698 ?

A. 519 + 1,832
B. 1,394 + 958
C. 1,863 + 571
D. 754 + 1,898

**10.** 78,912 _____ 71,147 + 7,765

A. >
B. <
C. =

**11.** Heba bought a laptop for 13,350 pounds and a TV set for 8,750 pounds. What is the total money did she pay ?

A. 21,000 pounds
B. 21,100 pounds
C. 22,100 pounds
D. 23,000 pounds

Lessons
# 4&5

# • Subtraction Strategies
# • Subtraction with Regrouping



## Learn 1 Subtraction strategies



On Thursday, the number of the metro passengers was 6,543.
On Friday it was 3,226.

Find the difference between the number of passengers in the two days.

**Subtract :** 6,543 – 3,226

### One Way Counting down using number line with decomposing strategy

**To find the difference : 6,543 – 3,226 do the following steps :**

**Step 1**

• Draw a number line without marks, write the minuend (the greater number) at the right side on the number line.



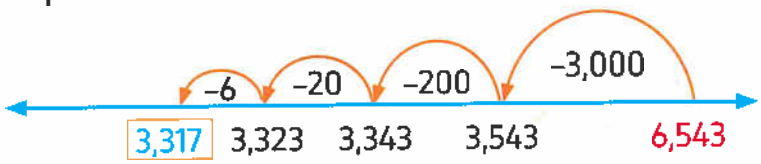

**Step 2**

• Decompose the subtrahend in expanded form.

3,226 = 3,000 + 200 + 20 + 6

**Step 3**

• Make hops on the number line to subtract (count down) the values in the expanded form. Record the different under the number line.




▶ **The difference is the number you got. So, 6,543 – 3,226 = 3,317 then, the difference is 3,317 passengers.**

**Note**

• **In the last hop,**
you may decompose the number 6 into 3 and 3 and subtract in two hops.




**Notes for parents :**

• Remind your child how he/she write any number in expanded form. This will help him/her to apply decomposing strategy to subtract.

## Another Way Counting up using number line with decomposing strategy

**To find the difference : 6,543 – 3,226 do the following steps :**

Step 1

- Draw a number line without marks, write the subtrahend (the smaller number) at the left side on the number line.

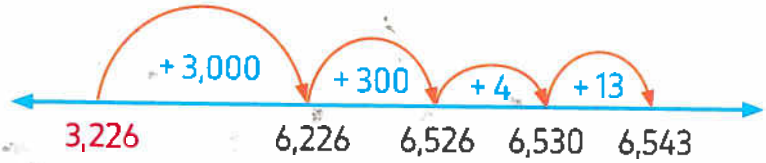



Step 2

- Use addition (counting up) and make hops on the number line to get the minuend.

Hint : (You can make different hops with any numbers).

Step 3

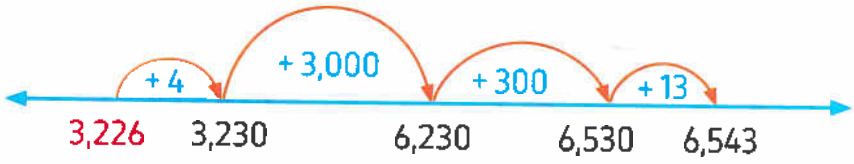



- Add the numbers above the number line to find the difference.

$3{,}000 + 300 + 4 + 13 = 3{,}317$

So, $6{,}543 - 3{,}226 = 3{,}317$

**There are many different ways to count up, as :**

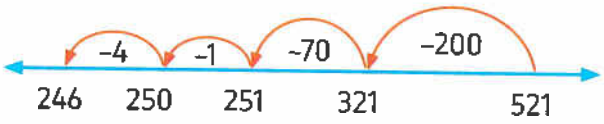



$4 + 3{,}000 + 300 + 13 = 3{,}317$

## Example 1

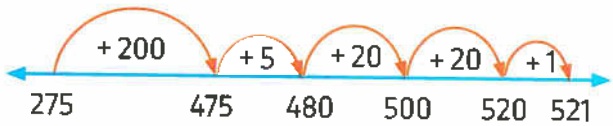
**Find the difference.** $521 - 275$

**Solution**




So, $521 - 275 = 246$

Another way




So, $200 + 5 + 20 + 20 + 1 = 246$

## Check your understanding

**Solve the following problem using a strategy of your choice.**

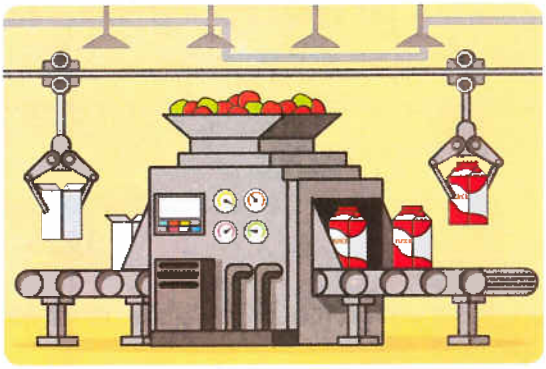
$6{,}357 - 2{,}467 =$ _____ _____



- Let your child choose his/her favorite ways to count up.
- Help your child to solve "check your understanding" using any strategy. Ask him/her why he/she choose to answer using this strategy.

## Learn 2 Subtraction with regrouping

A factory produced 3,675 cartoons of juice in a month.
In the next month, the factory produced 7,869 cartoons of juice.
Find the difference between the number of cartoon of juice in the two months.



**Subtract :** 7,869 – 3,675

**Estimate :** 8,000 – 4,000 = 4,000 [Round to the nearest Thousand]

**Use the standard subtraction algorithm.**

| Step 1 | Step 2 | Step 3 | Step 4 |
|---|---|---|---|
| Subtract the ones. | Regroup hundreds. Subtract the tens. | Subtract the hundreds. | Subtract the thousands. |
| 7, 8 6 9<br>– 3, 6 7 5<br>4 | 7 16<br>7, ~~8~~ ~~6~~ 9<br>– 3, 6 7 5<br>9 4 | 7 16<br>7, ~~8~~ ~~6~~ 9<br>– 3, 6 7 5<br>1 9 4 | 7 16<br>7, ~~8~~ ~~6~~ 9<br>– 3, 6 7 5<br>4, 1 9 4 |

So, the difference is 4,194 cartoons of juice.
The answer is close to the estimate, so 4,194 is reasonable.

*Note that :*

- If the numbers were rounded to the nearest Hundred to estimate.

7,869 – 3,675
↓
7,900 – 3,700 = 4,200 [ it is more closer to the exact answer ]

- If the numbers were rounded to the nearest Ten to estimate.

7,869 – 3,675
↓
7,870 – 3,680 = 4,190 [ it is more closer to the exact answer than rounding to Thousand or rounding to Hundred ]

**Notes for parents :**

- The exact answer is more reasonable to estimation using rounding to the nearest 10 than rounding to the nearest other place values.

## Example 2

**Find the difference. Round to the given estimation to check the reasonableness of the answer.**

a. 531 – 278 [Round to the nearest Ten]

b. 7,419 – 1,742 [Round to the nearest Hundred]

### Solution

a.

$$\begin{array}{r} {}^{4}\cancel{5}\ {}^{12}\cancel{3}\ 11 \\ -\ 2\ 7\ 8 \\ \hline 2\ 5\ 3 \end{array} \quad \text{Round to 10} \quad \begin{array}{r} 5\ 3\ 0 \\ -\ 2\ 8\ 0 \\ \hline 2\ 5\ 0 \end{array}$$

[The answer is reasonable]

b.

$$\begin{array}{r} {}^{6}\cancel{7},\ {}^{13}\cancel{4}\ 1\ 9 \\ -\ 1,\ 7\ 4\ 2 \\ \hline 5,\ 6\ 7\ 7 \end{array} \quad \text{Round to 100} \quad \begin{array}{r} 7,\ 4\ 0\ 0 \\ -\ 1,\ 7\ 0\ 0 \\ \hline 5,\ 7\ 0\ 0 \end{array}$$

[The answer is reasonable]

## Example 3

**Estimate using rounding to the nearest 10 , 100 , 1,000 and 10,000 to check the reasonableness of the answer. Find the exact difference. 46,853 – 19,729**

### Solution

Round to nearest 10

$$\begin{array}{r} {}^{3}\cancel{4}\ {}^{16}\cancel{6},\ 8\ 5\ 0 \\ -\ 1\ 9,\ 7\ 3\ 0 \\ \hline 2\ 7,\ 1\ 2\ 0 \end{array}$$

Round to nearest 100

$$\begin{array}{r} {}^{3}\cancel{4}\ {}^{16}\cancel{6},\ 9\ 0\ 0 \\ -\ 1\ 9,\ 7\ 0\ 0 \\ \hline 2\ 7,\ 2\ 0\ 0 \end{array}$$

Round to nearest 1,000

$$\begin{array}{r} 4\ 7,\ 0\ 0\ 0 \\ -\ 2\ 0,\ 0\ 0\ 0 \\ \hline 2\ 7,\ 0\ 0\ 0 \end{array}$$

Round to nearest 10,000

$$\begin{array}{r} 5\ 0,\ 0\ 0\ 0 \\ -\ 2\ 0,\ 0\ 0\ 0 \\ \hline 3\ 0,\ 0\ 0\ 0 \end{array}$$

Exact difference

$$\begin{array}{r} {}^{3}\cancel{4}\ {}^{16}\cancel{6},\ 8\ {}^{4}\cancel{5}\ {}^{13}\cancel{3} \\ -\ 1\ 9,\ 7\ 2\ 9 \\ \hline 2\ 7,\ 1\ 2\ 4 \end{array}$$

The exact difference is more reasonable to estimation using rounding to the nearest 10 than rounding to 100 , 1,000 or 10,000

## Check your understanding

**Solve the following problems using the standard subtraction algorithm. Then, round each number to the nearest Tens, Hundred Thousands or Ten Thousands to check the reasonableness of your answers.**

a. 4,271 – 1,834

b. 52,329 – 31,255

c. 608,452 – 109,786

- Remind your child to look at each exercise carefully and decide how he/she needs to regroup before proceeding.

# Exercise 8

on lessons 4&5

- Subtraction Strategies
- Subtraction with Regrouping

REMEMBER UNDERSTAND APPLY PROBLEM SOLVING From the school book

**1.** Solve the following problems using counting down using number line with decomposing strategy.

a. 841 – 266

b. 5,612 – 1,505

**2.** Solve the following problems using counting up using number line with decomposing strategy.

a. 972 – 586

b. 6,275 – 3,761

**3.** Solve the following problems using a strategy of your choice.

strategies may vary

a. 734 − 243 =

b. 839 − 199 =

c. 6,245 − 2,400 =

d. 5,200 − 2,201 =

e. 27,340 − 18,930 =

**4.** Use the standard subtraction algorithm to solve the problems. Then, round each number to the nearest Thousand to check the reasonableness of your answer.

a. 9,263 − 3,842 → ____ − ____

b. 6,625 − 4,417 → ____ − ____

c. 1,816 − 1,066 → ____ − ____

d. 25,884 − 18,875 → ____ − ____

e. 46,835 − 19,727 → ____ − ____

f. 24,305 − 3,071 → ____ − ____

g. 23,640 − 14,635 → ____ − ____

h. 76,053 − 5,296 → ____ − ____

i. 538,109 − 321,299 → ____ − ____

j. 680,000 − 124,572 → ____ − ____

**5.** Use the standard subtraction algorithm to solve the following problems. Then round to the nearest Thousands to check the reasonableness of your answer as the examples.

▶ **Examples :**

- 11 / 4 X 14 — 5,246 − 2,873 = 2,373
  5,000 − 3,000 = 2,000
- 9 / 7 13 3 10 12 — 83,402 − 58,336 = 25,066
  83,000 − 58,000 = 25,000

a. 2,654 − 1,431 = ____
____ − ____ ≈ ____

b. 3,458 − 2,064 = ____
____ − ____ = ____

c. 7,326 − 5,296 = ____
____ − ____ ≈ ____

d. 70,623 − 30,611 = ____
____ − ____ = ____

e. 238,763 − 18,764 ≈ ____
____ − ____ ≈ ____

f. 853,004 − 45,878 = ____
____ − ____ = ____

g. 542,302 − 281,976 = ____
____ − ____ ≈ ____

h. 721,010 − 350,891 = ____
____ − ____ ≈ ____

**6.** Find the results, complete using (> , < or =).

a. 3,250 – 137 ◯ 3,250 – 731

b. 7,431 – 250 ◯ 9,302 – 250

c. 6,666 – 2,222 ◯ 8,888 – 4,444

d. 849 – 598 ◯ 1,000 – 750

e. 18,654 – 367 ◯ 10,000 + 8,000 + 200 + 80 + 7

f. 12,926 + 19,809 ◯ 57,400 – 24,865

**7.** Solve the following story problems using a strategy of your choice.
Follow the orders when rounding to check the reasonableness of your answer.

a. Samir and Mohamed participated in a project. Samir paid 342,650 pounds. If the cost of the project is 668,500 pounds, how much is Mohamed paying ? [El-Menia 22]



b. If the population of Matrouh Governorate is 517,901 people, and the population of South Sinai Governorate is 112,211, then what is the difference between the population of Matrouh Governorate and the population of South Sinai Governorate ? [El-Gharbia / Qotour 22]



c. A trap jaw ant wanted to cross a river that was 3,548 cm across. The ant had already swum 1,672 cm. How much farther does the ant have to go ?



**d.** Two colonies of fire ant were stuck in a flood and made floating rafts to survive. The first colony had approximately 1,267 ants and the second had 3,452 ants. How many more ants were in the second colony ?



**e.** A fire ant colony has 255,000 ants. A Gigantiops destructor ant colony has 6,200 ants.
What is the difference between the size of the two colonies ?



**f.** It takes 15,422,140 ants to move a log that weighs 77 kg. It takes approximately 6,350,300 ants to move a rock that weighs 32 kg.
How many more ants does it take to move the log than the rock ?

Round to the nearest Million to estimate.

## Challenge

**8.** Write the missing digits.

**a.**

| | | | | |
|---|---|---|---|---|
| | ☐ | 3 | ☐ | 7 |
| − | 5 | ☐ | 7 | ☐ |
| | 3 | 0 | 2 | 4 |

**b.**

| | | | | |
|---|---|---|---|---|
| | ☐ | 3 | 6 | 4 |
| − | 1 | 2 | ☐ | 5 |
| | 1 | ☐ | 3 | ☐ |

# Multiple Choice Questions

Choose the correct answer.

**1.** Subtract : 613 – 247 = _____ [Cairo 22]

A. 567 B. 434
C. 366 D. 807

**2.** Find the difference : $\begin{array}{r} 457,206 \\ -\ 124,680 \\ \hline \end{array}$

A. 332,486 B. 332,526
C. 333,486 D. 333,526

**3.** Which one has the answer 23,837 ?

A. 37,521 – 12,684 B. 36,521 – 12,684
C. 36,521 – 13,684 D. 38,521 – 13,684

**4.** A local bakery sold 1,232 zalabya in one day. If they sold 876 zalabya in the moring, how many were sold during the rest of the day ? [Beni Suef 22]

A. 356 B. 520 C. 1,588 D. 2,108

**5.** If Ahmed had 100 pounds, and the sum of what he and his friend had was 350 pounds. How much money did his friend have ?

A. 250 B. 150 C. 100 D. 50

**6.** Salma solves this problem $\begin{array}{r} 2,524 \\ -\ 1,352 \\ \hline 2 \end{array}$ What is her next step ?

A. Add 2 and 5 in the tens place.
B. Subtract 5 from 2 in the tens place.
C. Regroup the tens place and subtract 5 from 12
D. Regroup the tens place and subtract 5 from 11

**7.** Which choice shows how you would correctly use rounding to estimate a reasonable answer to the problem 537 – 259 ?

A. 520 – 250 = 270 B. 530 – 240 = 290
C. 540 – 260 = 280 D. 540 – 250 = 290

**8.** A shop sold goods for 54,243 pounds and 34,786 pounds in the next day. What is the difference between the sales in the two days ?

A. 54,243 – 34,786 = 20,543 pounds. B. 54,243 – 34,786 = 19,457 pounds.
C. 54,243 + 34,786 = 88,929 pounds. D. 54,243 + 34,786 = 89,029 pounds.

Concept

2

# Solving Multistep Problems



**Fast Fact**

*Female kangaroos sport a pouch on their belly (made by a fold in the skin) to cradle baby kangaroos, called joeys. If a female weighs 35 kg, and weighs holding her joey 38 kg. What is the weight of her joey ?*

| Lesson No | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
| Lesson 6 | Bar Models, Variables, and Story Problems | Bar model - Variable | • Students will use letters to represent unknown quantities in equations.<br>• Students will use bar models to represent and solve story problems.<br>• Solve for the variable in an equation. |
| Lesson 7 | Solving Multistep Story Problems with Addition and Subtraction | Review vocabulary as needed | • Students will solve multistep story problems.<br>• Students will explain how they solved multistep story problems. |

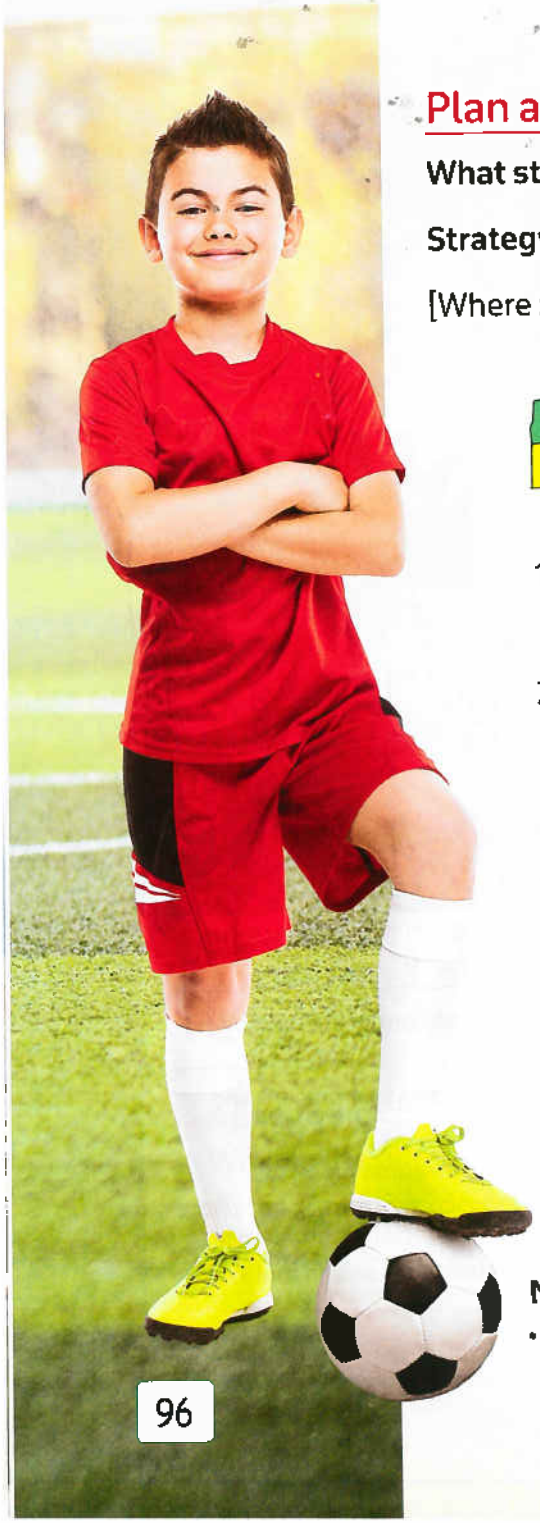
Lesson 6

# Bar Models, Variables, and Story Problems

## Learn 1 How do you write a number sentence to solve a problem ?

Suppose you had 225 L.E. to spend. How much money would you have left if you bought the soccer socks ?

| Soccer Gear Sale! | |
|---|---|
| soccer socks | 90 L.E. |
| Goalie gloves | 120 L.E. |
| shinguards | 225 L.E. |

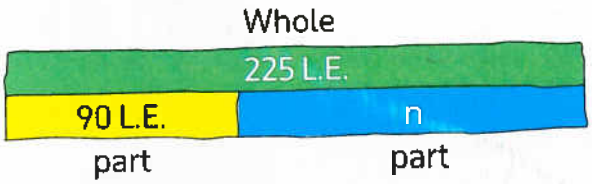


### Plan and Solve

**What strategy will you use ?**

**Strategy :** Write a Number Sentence using bar models.

[Where : n shows the money left]




1. From the bar model :

   $90 + n = 225$

2. Subtract to find the n

   $n = 225 - 90$

   $n = 135$

**Answer : You will have 135 L.E. left.**



### Look Back and Check

**Is your answer reasonable ?** $90 + 135 = 225$ Yes, it checks.

**Notes for parents :**

- Ask your child why is subtraction used for this problem ? He/she may answer "subtraction is used because I need to find the part that is left".

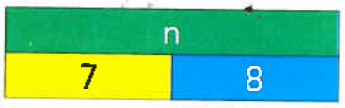
# Identifying the Main Idea

**Identifying the main idea** when you read in math can help you use the **problem-solving strategy, and write a number sentence.**



The **main idea** here is part-part-whole, with the whole unknown.

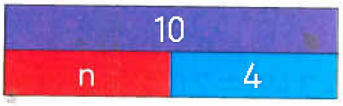
Nader spent 7 L.E. on Monday and 8 L.E. on Tuesday. How much did he spend in all on both days ?




• Equation 7 + 8 = n

**Add to find the whole.**
Part ⊕ Part = Whole
7 + 8 = n

Sally had 10 L.E. After she bought a book, she had 4 L.E. left. What did the book cost ?




• Equation n + 4 = 10

**Subtract to find a part.**
Whole − Part = Part
10 − 4 = n



The **main idea** here is part-part-whole, with the one part unknown.



Each picture shows the main idea. The main idea helps you know what **number sentence** to write.

• If your child has trouble writing number sentences for problems, tell him/her to figure out the main idea in the problem, draw a picture for it, and then decide which operation it calls for.

## Example 1

There are 5,526 bees in a hive.

In this hive 3,491 are males and the rest are females.

**How many females in this hive ?**

### How to write a Number sentence (or equation)

Step 1 Show the main idea.

Step 2 Decide which operation fits the main idea.

Step 3 Use a letter to show what you are trying to find.

Step 4 Solve the number sentence.

### Solution

- **The whole is :** 5,526
- **One part is :** 3,491 [males]
- **The second part is unknown :** $x$ [females]
- **Bar model :**

| 5,526 | |
|---|---|
| 3,491 | $x$ |

- **Equation :** $3{,}491 + x = 5{,}526$
- **Solution :** $x = 5{,}526 - 3{,}491 = 2{,}035$ females. (④ ⑫)

**Note**

You can write many equations for this problem

$3{,}491 + x = 5{,}526$ , $x + 3{,}491 = 5{,}526$

$5{,}526 - 3{,}491 = x$ or $5{,}526 - x = 3{,}491$

The value of $x$ is the same.

### Check your understanding

If the number of visitors of the Pyramids in one month is 183,523 and the number of foreign visitors is 38,191

**Find the number of Egyptian visitors.**

**Equation :** _____

**Solution :** _____

**Bar model**

| | |
|---|---|
| | |

**Notes for parents :**

- If your child writes only the answer, ask him/her to reread the directions, and ask him/her to write a number sentence that is including a letter stands for the unknown.

## Learn 2 Solving equations with variables

- An equation is a number sentence stating that two amounts are equal.
- A variable is a letter in the equation that you should find its value.
- An equation is true if the values on both sides of the equal sign are equal. You solve an equation when you find the value of the variable that makes the equation true.

### Example 2

Solve the equation by using a bar model : $14 - d = 8$

**Solution**

- **Bar model :**

| 14 | |
|---|---|
| d | 8 |

- **Solution :** $d = 14 - 8 = 6$

### Example 3

Solve the equation by using a bar model : $y - 34{,}500 = 55{,}200$

**Solution**

- **Bar model :**

| y | |
|---|---|
| 34,500 | 55,200 |

- **Solution :** $y = 34{,}500 + 55{,}200 = 89{,}700$



### Example 4

Solve the equation by using a bar model : $74{,}562 + m = 125{,}708$

**Solution**

- **Bar model :**

| 125,708 | |
|---|---|
| 74,562 | m |

- **Solution :** $m = 125{,}708 - 74{,}562 = 51{,}146$

### Check your understanding

**Solve the following equations.**

a. $x + 54{,}600 = 87{,}623$

b. $76{,}450 - m = 15{,}412$

c. $p - 4{,}252 = 31{,}726$

d. $13{,}725 + n = 70{,}000$

- Ask your child to check his/her answer using fact family.

Exercise 9

on lesson 6

# Bar Models, Variables, and Story Problems

● REMEMBER ● UNDERSTAND ○ APPLY PROBLEM SOLVING | From the school book

**1.** Find the value of each variable in the following part-part whole tables.

a.

| x | |
|---|---|
| 34,750 | 19,051 |

b.

| 121,725 | |
|---|---|
| 10,714 | y |

c.

| 78,514 | |
|---|---|
| a | 29,125 |

d.

| m | |
|---|---|
| 41,621 | 52,321 |

**2.** Solve the following equations, create a bar model to solve the following problems.

a. $m - 4 = 11$

b. $a + 9 = 13$

c. $12 = 24 - r$

d. $8 = 5 + w$

**3.** Solving equations with variables. Create a bar model to solve the following problems.

a. 📖 $14{,}000 - n = 6{,}000$

Bar model :

Solution :

b. $m - 35{,}462 = 2{,}741$

Bar model :

Solution :

c. 📖 $b - 53{,}500 = 75{,}200$

Bar model :

Solution :

d. $l + 432{,}750 = 642{,}781$

Bar model :

Solution :

e. 📖 $725{,}625 + c = 935{,}075$

Bar model :

Solution :

f. 📖 $13{,}280 - d = 5{,}420$

Bar model :

Solution :

g. $722{,}561 - p = 720{,}231$

Bar model :

Solution :

h. 📖 $f + 205{,}925 = 810{,}775$

Bar model :

Solution :

**4.** **Match.**

| | | | |
|---|---|---|---|
| a. | 3,648 – x = 3,625 | 1. | x = 21 |
| b. | x + 38 = 62 | 2. | x = 22 |
| c. | x – 8 = 14 | 3. | x = 23 |
| d. | 3,254 + x = 3,275 | 4. | x = 24 |

**5.** **Complete.**

a. In the corresponding bar model,
the value of the unknown C = _____

| C | |
|---|---|
| 3,425 | 5,274 |

[El-Dakahlia 22]

b. In the corresponding bar model,
the value of the unknown C = _____

| 7,620 | |
|---|---|
| C | 4,310 |

[Damietta 22]

c. In the opposite bar model,
the value of b = _____

| b | |
|---|---|
| 9,901 | 1,000 |

[Souhag 22]

d. In the equation G + 710 = 930, the value of G is equal to _____ [Cairo - El-Kobba 22]

e. In the equation 125 + A = 300, then A = _____ [Souhag 22]

f. The value of the symbol H in the equation H – 1,590 = 3,410 is _____
[El-Gharbia - Samanoud 22]

g. If 3,000 – B = 2,000, then the value of B = _____ [Cairo - Heliopolis 22]

h. If C – 2,348 = 5,053, then C = _____ [Cairo - El-Tebbeen 22]

i. If 835 – A = 751, then the value of A = _____ [El-Fayoum 22]

j. 4,625,269 – _____ = 1,000,000 [Port Said 22]

## Story Problems

6. Mr Mostafa has written 157 pages of a book. He wants the book to have about 550 pages. How many more pages does he need to write ?

Equation : _____

Solution : _____

Bar model



7. The number of boys and girls in a school is 2,340 if the number of boys in this school is 1,234 What is the number of girls in this school ?

Equation : _____

Solution : _____

Bar model



8. There are 12,000 species of ants. Of these 12,000 species. 2,500 species live in Africa and the rest live in other parts of the world. How many species do not live in Africa ?

Equation : _____

Solution : _____

Bar model



9. There are 5,328 ants in the colony. In the colony, 2,164 ants are females and the rest are males. How many male ants are in the colony ?

Equation : _____

Solution : _____

Bar model



10. In colony A there are 1,200 ants. Some ants are out foraging for food and supplies, and 700 ants are taking out the colony's trash. How many ants are foraging for food and supplies ?

Equation : _____

Solution : _____

Bar model



## Challenge

11. Solve the equation by using a bar model.

l + l = 8



Solution : _____



# Multiple Choice Questions

Choose the correct answer.

**1.** If $24 = x - 8$, then $x =$ _____

A. 20 B. 8 C. 32 D. 10

**2.** What is the value of x? $25 + x = 37$

A. 7 B. 12 C. 62 D. 72

**3.** If $32{,}782 + k = 41{,}262$, then $k =$ _____

A. 8,562 B. 8,480

C. 74,044 D. 73,916

**4.** If $s - 542{,}521 = 271{,}432$, then $s =$ _____

A. 271,089 B. 814,957

C. 813,953 D. 817,782

**5.** If $35{,}741 - y = 7{,}425$, then $y =$ _____

A. 28,316

B. 43,166

C. 40,213

D. 15,730

**6.** There are 30,000 ants in the colony, In the colony 17,300 are females and the rest are males then the number of male ants = _____

A. 47,300 B. 12,452

C. 50,760 D. 12,700

**7.** Sara had 374,522 L.E. She bought a car for 271,500 L.E. then the remainder money with her = _____

A. 646,022

B. 103,022

C. 107,390

D. 102,352

**8.** Hany has 21 pounds. He gave his friend a lot of pounds and he had 15 pounds left. Let C represent the amount of the pounds with his friend.

Which equation represents this problem?

A. $15 - c = 21$ B. $21 - c = 15$

C. $21 + 15 = c$ D. $21 + c = 15$

**9.** In a primary school, there are 680 boys and 800 girls. Let P is the number of all the pupils in this school.

Which bar model represents this problem?

A.

| P | |
|---|---|
| 680 | 800 |

B.

| P | |
|---|---|
| 600 | 860 |

C.

| 680 | |
|---|---|
| 800 | P |

D.

| 800 | |
|---|---|
| 680 | P |

Lesson 7

# Solving Multistep Story Problems with Addition and Subtraction



## Learn

Some story problems have a hidden question.

To solve the problem, you must first find and answer the hidden question.

### Example

Amgd is reading a book. He reads 96 pages in the first week and 129 pages in the second week. The book has 290 pages.

**How many pages are left to read ?**

### Solution

- **Hidden question :**
  How many pages did Amgd read in the two weeks ?
  Amgd read = 96 + 129 = 225 pages
- Use the new information to solve the problem and find the left pages.
  The left pages = 290 – 225 = 65 pages

### Another Way

- **Hidden question :**
  How many pages are left in the first week ?
  290 – 96 = 194 pages
- **Final answer :**
  How many pages are left to read ?
  194 – 129 = 65 pages

### Third Way

**Bar model**

| 290 | |
|---|---|
| 96 + 129 | n |

- **Equation :**
  96 + 129 + n = 290
  225 + n = 290
- **Answer :**
  n = 290 – 225 = 65 pages

### Check your understanding

A library sold 25,325 books in the first week, 19,712 books in the second week and 28,119 in the third week. If the library had 473,590 book. How many books are left ?

**Notes for parents :**

- Give your child a multistep story problem and ask your child to use the solving steps to help solving the problem.

Exercise 10

on lesson 7

# Solving Multistep Story Problems with Addition and Subtraction

● REMEMBER ● UNDERSTAND ○ APPLY PROBLEM SOLVING | From the school book

**1. Answer the following problems.**

a. Sara, Bassem and Mina are collecting stamps. Sara collected 743 stamps, Bassem collected 198 stamps and Mina collected 357 stamps. How many more stamps did Sara collect than Bassem and Mina have combined ?

b. A factory sold 6,580 toys in the first month, 7,214 toys in the second month, and 5,975 toys in the third month. The expect number of sold toys is 25,000 toys by the end of the fourth month. How many toys are needed to be sold in the fourth month to reach this count ?

c. The Nile River is approximately 6,650 kilometers long. Kareem and his family travel the Nile River from one end to the other end. If they travel 1,075 kilometers in January, then 1,120 kilometers in February, and then 1,325 kilometers in March, how many more kilometers do they still need to travel to reach the other end ?

d. The ant colony website hopes that a new colony A with up to 173,500 will form. If a colony of 27,385 ants and a colony of 52,890 ants join the new colony, how many more ants can join ?

e. Hazem and Menna are monitoring ant colonies on the website.
Hazem has been monitoring an ant colony with 132,890 ants.
Menna has been monitoring an ant colony with 57,024 ants and another colony with 72,999 ants. Who has been monitoring more ants ? How many more ?

f. 🕮 The Great Pyramid had 59,000 visitors in January, 27,525 visitors in February, and 32,975 visitors in March. They expect to have 150,000 visitors by the end of April. How many visitors need to show up in April to reach this count ?

g. 🕮 New Valley has a population of 256,088. If Matrouh has a population of 429,999 and South Sinai has a population of 108,951, how many more people do Matrouh and South Sinai have combined than New Valley ?

h. 🕮 Aswan has a population of 1,575,914. If Luxor has a population of 1,333,309 and Red Sea has a population of 383,796, how many more people do Luxor and Red Sea have combined than Aswan ?

## Challenge

2. The following table represents the number of shirts in stock of a store.

| | Green | Red |
|---|---|---|
| **Small** | 15,436 | 18,421 |
| **Medium** | 33,142 | 43,218 |
| **Large** | 5,347 | 14,132 |

**Answer the following problems.**

a. How many more red shirts than green shirts ?

b. How many more small shirts than large shirts ?

# Multiple Choice Questions

Choose the correct answer.

**1.** There are 44 people on the bus. At the first stop, 16 more people got on the bus. 9 people got off the bus.
How many people are on the bus?

A. 69 B. 19
C. 51 D. 37

**2.** There were 27 pieces of candy in the bag. Hany bought 14 more pieces of candy. He ate 12 pieces. How much candy does he have left?

A. 53 B. 29
C. 25 D. 1

**3.** This morning, there were 26 fish in an aquarium and 32 fish in the other aquarium. At noon, 11 fish were sold. How many fish are left in the aquariums?

A. 47 B. 69
C. 17 D. 5

**4.** There were 186 volleyballs in the bag. There were 134 volleyballs in the basket. 100 balls were used for practice.
How many volleyballs were not used?

A. 420 B. 220
C. 152 D. 48

**5.** Nada was counting ants in a colony. She counted 3,785 ants on Monday and 1,525 ants on Tuesday. If there are 10,520 ants in this colony. How many ants still to count?

A. 3,210 ants B. 4,210 ants
C. 5,210 ants D. 6,210 ants

**6.** A ship entered a port with 611 tonnes of cargo. It picked up a 25 tonnes shipment of fresh fruit and a 149 tonnes shipment of electronics before it left the port. How much cargo did the ship leave port with?

A. 437 tonnes B. 636 tonnes
C. 760 tonnes D. 785 tonnes

**7.** A water truck was filled with 4,000 liters of water. It delivered 1,250 liters to its first client. It delivered 620 liters to its second client. It delivered 2,120 liters to its last client.
How much water was left in the truck?

A. 10 liters B. 50 liters
C. 2,130 liters D. 7,990 liters

**8.** Yosra mixes 50 grams of fertilizer with 500 grams of soil. She fills a pot with the mixture and has 130 grams left over at the end. How much mixture went into the pot?

A. 320 grams B. 370 grams
C. 420 grams D. 680 grams

**9.** There were 9,450 people at the football match. 3,450 more people came to watch the match. 1,600 people left early. How many people were at the football match?

A. 4,400 B. 7,600 C. 14,500 D. 11,300

# Unit Two Assessment




**1. Put (✓) to the correct statement or (✗) to the incorrect statement.**

a. The statement $47 - 23 = 23 - 47$ is correct, because the commutative property applies to addition and subtraction. [ ]

b. If $x + 5 = 7$, then $x = 2$ [ ]

c. $469 + 252 = 217$ [ ]

d. $112 + 69 = 69 + 112$ [ ]

e. The best rounding to estimate a reasonable answer to the problem $427 + 148$ is $430 + 150 = 580$ so, the answer 580 is reasonable. [ ]

f. Rana had 251,750 pounds, she bought a mobile for 5,555 pounds and a car for 125,780 pounds , then the left money with Rana is 131,335 pounds. [ ]

**2. Choose the correct answer.**

a. In the bar model

| 256 | |
|---|---|
| m | 180 |

, the value of m is _____

A. 124 B. 156 C. 76 D. 436

b. $[112 + 38] + 77 = 112 + [$ _____ $+ 77]$

A. 38 B. 77 C. 115 D. 150

c. $1{,}325 - 820 =$ _____

A. 305 B. 405 C. 505 D. 1,505

d. $0 + 5{,}298 = 5{,}298$ is using _____

A. associative property
B. commutative property
C. additive identity property
D. subtraction mental strategy

e. If $3{,}645 + y = 5{,}789$ , then the value of y is _____

A. 2,144 B. 3,144 C. 8,434 D. 9,434

f. Joudy found that $38{,}828 + 52{,}309 = 91{,}137$. Which estimate could she use to check if her answer is reasonable ?

A. $30{,}000 + 50{,}000 = 80{,}000$
B. $30{,}000 + 60{,}000 = 90{,}000$
C. $40{,}000 + 50{,}000 = 90{,}000$
D. $40{,}000 + 60{,}000 = 100{,}000$

**3. Complete the following.**

a. Two ants colonies have 33,585 ants. If colony A has 17,990 ants, then the number of ants in colony B = _____ ants.

b. 15 + 5 + 7 = [15 + _____ ] + 7 = 15 + [5 + _____ ]

c. In the bar model

| 87 | |
|---|---|
| 27 | c |

, the equation which you can form for it is _____ and the value of c equals _____

d. If n – 34 = 29 , then n = _____

e. 7,000 – 350 = _____

f. A local bakery sold 7,120 zalabya in one day. If they sold 1, 269 zalabya in the morning and 2,658 zalabya in the afternoon , then the number of zalabya sold during the rest of the day is _____ zalabya.

**4. Match.**

| | | | |
|---|---|---|---|
| a. | 3,508 + 3,692 | 1. | 1,000 + 30,000 + 477 |
| b. | 12,968 + 12,932 | 2. | 2,000 + 900 + 6 |
| c. | 6,592 – 3,686 | 3. | 9,653 – 2,453 |
| d. | 1,000,000 – 968,523 | 4. | 35,986 – 10,086 |

**5.** Nader made 18 pieces of falafel. He ate 6 pieces and his brother ate 5 pieces. Represent these data using bar model to show how many pieces are left ?

**6.** Use count back or count on using the number line to find 734 – 245

**7.** The Cairo tower had 66,000 visitors in January , 38,536 visitors in February and 46,985 visitors in March. The expect to have 200,000 visitors by the end of April. How many visitors need to show up in April to reach this count ?

Theme 1 | Number Sense and Operations

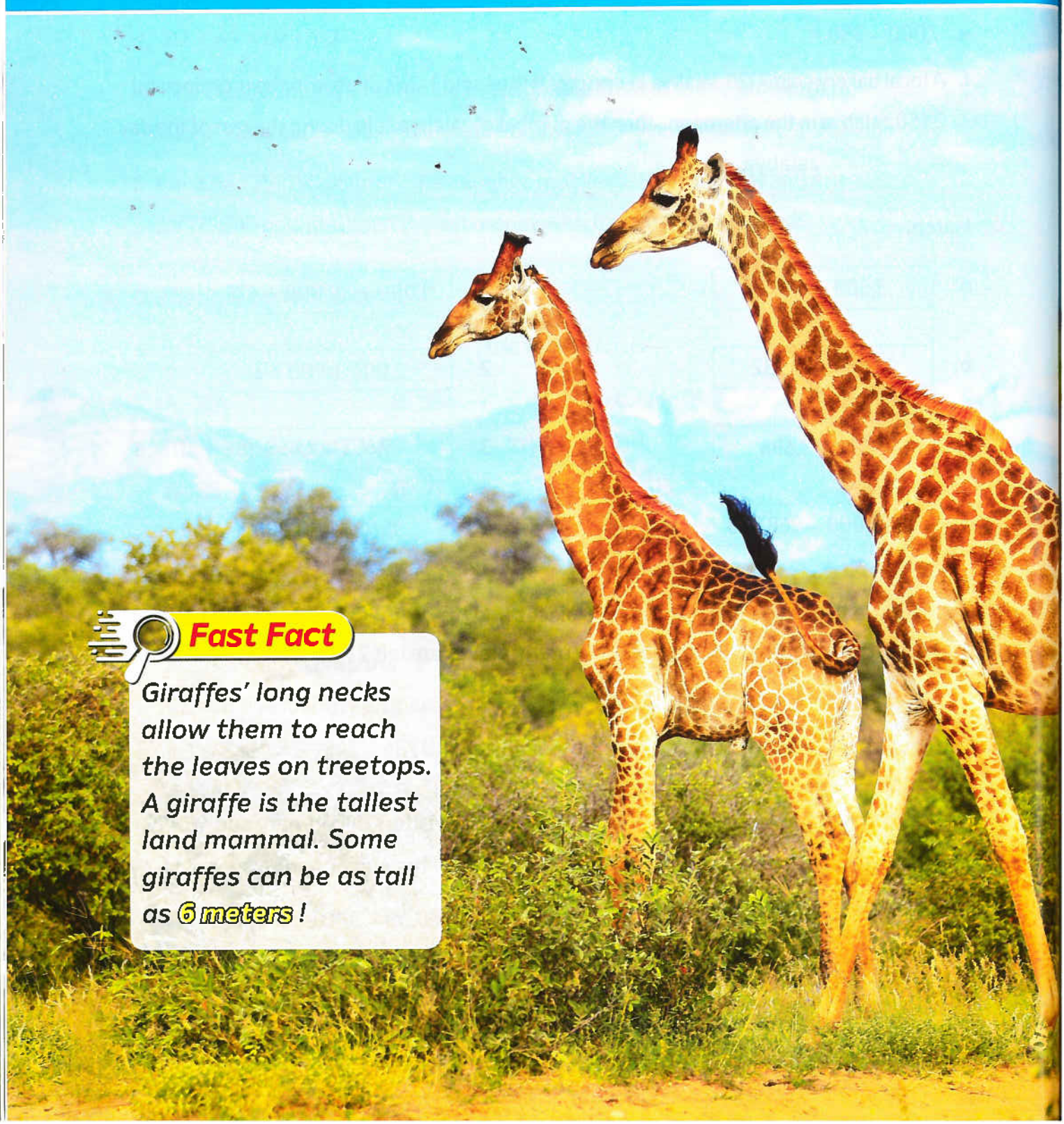
UNIT 3

# Concepts of Measurement

» **Concept 1 :** Metric Measurement

» **Concept 2 :** Time and Scaled Measurements

» **Concept 3 :** Measurement All Around



**Fast Fact**

*Giraffes' long necks allow them to reach the leaves on treetops. A giraffe is the tallest land mammal. Some giraffes can be as tall as **6 meters** !*

Concept

1

# Metric Measurement



**Fast Fact**

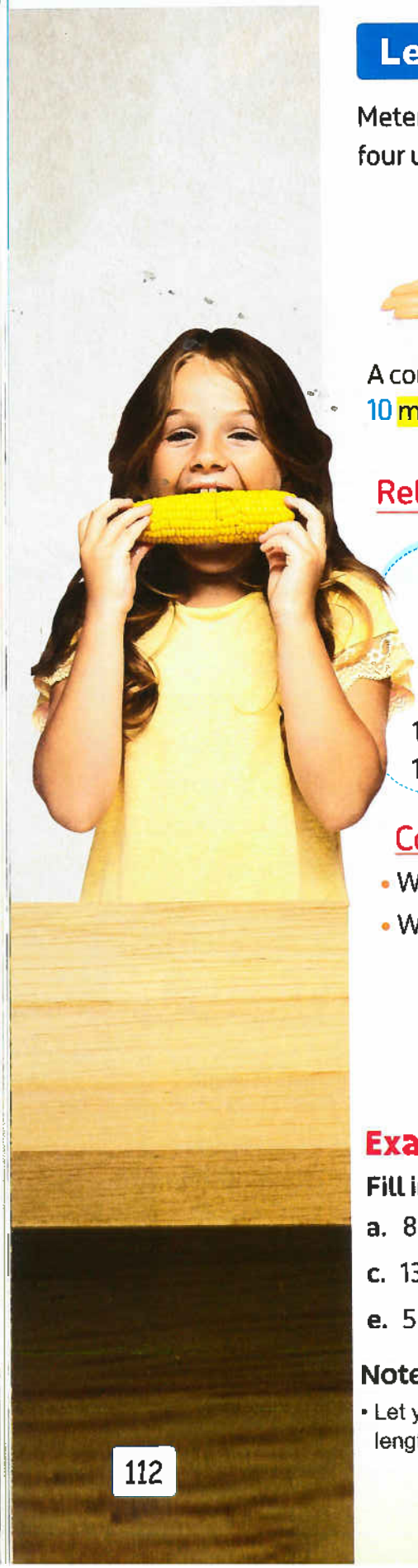
*The elephant is the largest land mammal. Elephants can weigh as much as (7,250 kilograms). They drink 110 to 180 liters of water a day ! A baby elephant is called a calf.*

| Lesson No. | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
| Lesson 1 | Ant Travel | Centi - Centimeter - Convert - Decompose - Kilo - Kilometer - Length - Meter - Metric System - Milli - Millimeter | • Students will explain the relationship between metric units of length.<br>• Students will convert between metric units of length. |
| Lesson 2 | The Weight Can Wait | Grams - Kilograms - Mass - Weight | • Students will explain the relationship between metric units of mass.<br>• Students will convert between metric units of mass. |
| Lesson 3 | Fill It Up | Capacity - Liter - Milliliter - Volume | • Students will explain the relationship between metric units of capacity.<br>• Students will convert between metric units of capacity. |
| Lesson 4 | Measurement and Unit Conversions | Review vocabulary as needed | • Students will compare place value relationships and measurement conversions.<br>• Students will use multiplication and division to convert units of measurement. |

Lesson 1

# Ant Travel

## "Metric Units of Length"

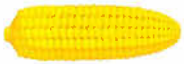


### Learn

Meter, decimeter, centimeter and millimeter are four units of measuring lengths.



A corn kernel is about 10 millimeters long.



An ear of corn is about 20 centimeters long or 2 decimeters long.



A young corn plant is about 1 meter tall.

### Relating Units of Length

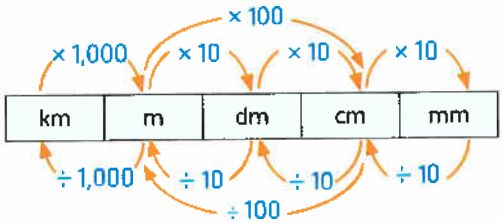
**Table of Measures**

1 kilometer = 1,000 meters
1 meter = 100 centimeters
1 meter = 10 decimeters
1 decimeter = 10 centimeters
1 centimeter = 10 millimeters

| | Name | Abbreviation |
|---|---|---|
| Lengh units | Kilometer | km |
| | Meter | m |
| | Decimeter | dm |
| | Centimeter | cm |
| | Millimeter | mm |

### Converting Metric Length Units

- When you change **larger** units to **smaller** units **multiply**.
- When you change **smaller** units to **larger** units **divide**.




### Example 1

**Fill in blanks.**

a. 8 m = _____ cm

b. 700 cm = _____ m

c. 130 mm = _____ cm

d. 15,000 m = _____ km

e. 5 km = _____ cm

f. 8 km = _____ dm

**Notes for parents :**

- Let you child understand that when converting from larger length unit to smaller length unit he/she can multiply by 10, 100 , 1,000 , ...

## Solution

a. 8 m = 800 cm

b. 700 cm = 7 m

c. 130 mm = 13 cm

d. 15,000 m = 15 km

e. 5 km = 5,000 m
= 500,000 cm

f. 8 km = 8,000 m
= 80,000 dm



## Example 2

**Complete each of the following.**

a. 7 m , 56 cm = _____ cm

b. 9 cm , 5 mm = _____ mm

c. 12 km , 12 m = _____ m

d. 4 m , 16 dm = _____ dm

## Solution

a. 7 m , 56 cm = 700 cm + 56 cm = 756 cm

b. 9 cm , 5 mm = 90 mm + 5 mm = 95 mm

c. 12 km , 12 m = 12,000 m + 12 m = 12,012 m

d. 4 m , 16 dm = 40 dm + 16 dm = 56 dm

## Example 3

**Convert the lengths into the units on the bar models.**

a.

| 845 cm | |
|---|---|
| _____ m | _____ cm |

b.

| 29,603 m | |
|---|---|
| _____ km | _____ m |

## Solution

a.

| 845 cm | |
|---|---|
| 8 m | 45 cm |

[Think : 845 = 800 + 45]

b.

| 29,603 m | |
|---|---|
| 29 km | 603 m |

[Think : 29,603 = 29,000 + 603]

## Check your understanding

**Complete each of the following.**

a. 600 mm = _____ cm

b. 600 mm = _____ m

c. 500 dm = _____ m

d. 3 km + 300 m = _____ m

e. 563 cm = _____ m , _____ cm

• Let your child explain the relationships between the metric length units "km , m , dm , cm , mm".

# Exercise 11

on lesson 1

## Ant Travel
## "Metric Units of Length"

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** **Circle the best unit to measure each length.**

1. Height of a student
   Kilometer Meter Centimeter Millimeter
2. Distance between home and school
   Kilometer Meter Centimeter Millimeter
3. Length of the Nile River
   Kilometer Meter Centimeter Millimeter
4. Length of an ant
   Kilometer Meter Centimeter Millimeter
5. Distance from Cairo to Alexandria
   Kilometer Meter Centimeter Millimeter

**2.** **Complete.**

a. 1 km = _____ m

b. 4 km = _____ m

c. 100 mm = _____ cm

d. 1 m = _____ cm

e. 5 m = _____ cm [Giza - Haram 22]

f. 30 cm = _____ mm

g. 9,000 mm = _____ cm [Alex. - Borg El-Arab 22]

h. 50,000 m = _____ km

i. _____ m = 70 km

j. 180 dm = _____ m

k. 6 m = _____ mm

l. 8 km = _____ cm

m. 5,744 m = _____ km , _____ m

n. 6 m , 6 dm = _____ dm

o. 98 mm = _____ cm , _____ mm

p. 4 m , 18 cm = _____ cm

q. 8 km , 14 m = _____ m

r. 18 m , 14 cm = _____ cm [El-Dakahlia 22]

s. 27 km , 55 m = _____ m [El-Fayoum 22]

t. 8 m , 45 cm = _____ cm

**3. Find the missing numbers.**

a.

| 230 cm | |
|---|---|
| ——— m | ——— cm |

b.

| 478 cm | |
|---|---|
| ——— m | ——— cm |

c.

| 85 cm | |
|---|---|
| ——— dm | ——— cm |

d.

| ——— m | |
|---|---|
| 7 km | 6 m |

e.

| ——— m | |
|---|---|
| 8 km | 88 m |

f.

| ——— mm | |
|---|---|
| 7 cm | 5 mm |

**4. Put (✓) for the correct statement or (X) for the incorrect statement.**

a. 4 km = 400 m [ ]

b. 55 m = 5 m , 5 cm [ ]

c. 6 km = 6,000 cm [ ]

d. 70 m = 7,000 cm [ ]

e. 6 km , 6 m = 12 m. [ ]

f. 8,000 mm = 8 m [ ]

g. 1 dm = 10 cm. (Alexandria – West 22) [ ]

h. 2 dm , 6 mm < 206 mm. (Kafr El-Sheikh – El-Hamoul 22) [ ]

i. 80 meters , 90 centimeters = 8,900 centimeters. (Beni Suef 22) [ ]

**5. Answer each one of the following.**

a. A train covers 3 km in one minute, what is the distance the train covers in 7 minutes in kilometers and in meters ?

b. When scientists studied the anthill, they found that it was 8 meters deep.

1. How many centimeters would that be ? Show your work.

2. The colony had to move tons of soil to construct their nest. The worker ants had to carry loads of soil 1 kilometer to the surface. If one ant carried 10 loads of soil in a week, How many kilometers did it travel while moving soil ? How many meters ? How many centimeters ?

——— km

——— m

——— cm

**c.** 🕮 Carpenter ants are so named because they build their nests inside wood, they do not eat this wood, Instead, they create a smooth tunnel system through it for their colony. Carpenter ants can be up to 3 centimeters long. A mature colony can have up to 100,000 ants. If the ants lined up end to end and each ant is 1 centimeter long,
How many meters long would a line of 100,000 ants be ?

**d.** 🕮 Using the information from the first item,
How many kilometers long would the line of 100,000 ants be ?

**e.** 🕮 If one black ant can walk 250 meters in 1 hour, how many hours will it take to walk 1 kilometer ?
If the same black ant walked for 10 hours, how far would it go ? Express your answer in kilometers and meters.



# Multiple Choice Questions

**Choose the correct answer.**

**1.** 18 m, 14 cm = _____ cm

A. 32 B. 1,814
C. 18,140 D. 18,014

**2.** 3 km = _____ m

A. 30 B. 300
C. 3,000 D. 13,000

**3.** 5,000 mm = _____ m

A. 5 B. 50
C. 500 D. 50,000

**4.** 505 cm = _____ m, _____ cm

A. 5 , 5 B. 5 , 50
C. 50 , 5 D. 50 , 50

**5.** _____ m = 8,400 cm

A. 84 B. 840
C. 8,400 D. 84,000

**6.** 423 cm = _____ [El-Monofia - Quesna 22]

A. 23 m , 4 cm B. 42 m , 3 cm
C. 4 m , 23 cm D. 3 m , 42 cm

**7.** 4m, 16 dm = _____ dm

A. 416 B. 4,160 C. 56 D. 4,016

**8.** Which sentence best explains the relationship between a meter and a kilometer ?

[Alexandria - West 22]

A. A kilometer is equal to 100 meters.
B. A kilometer is equal to 1,000 meters.
C. A meter is equal to 1,000 kilometers.
D. A meter is equal to 100 kilometers.

**9.** Anwar measures a stick that is 23 centimeters long. Then, he writes the length of the stick in millimeters. What is the place value of the number 2 in the number that Anwar wrote ?

A. Tens
B. Hundreds
C. Thousands
D. Ten Thousands

**10.** Using the relationship between units of length; Choose the correct answer to complete of the following table :

[Cairo - Heliopolis 22]

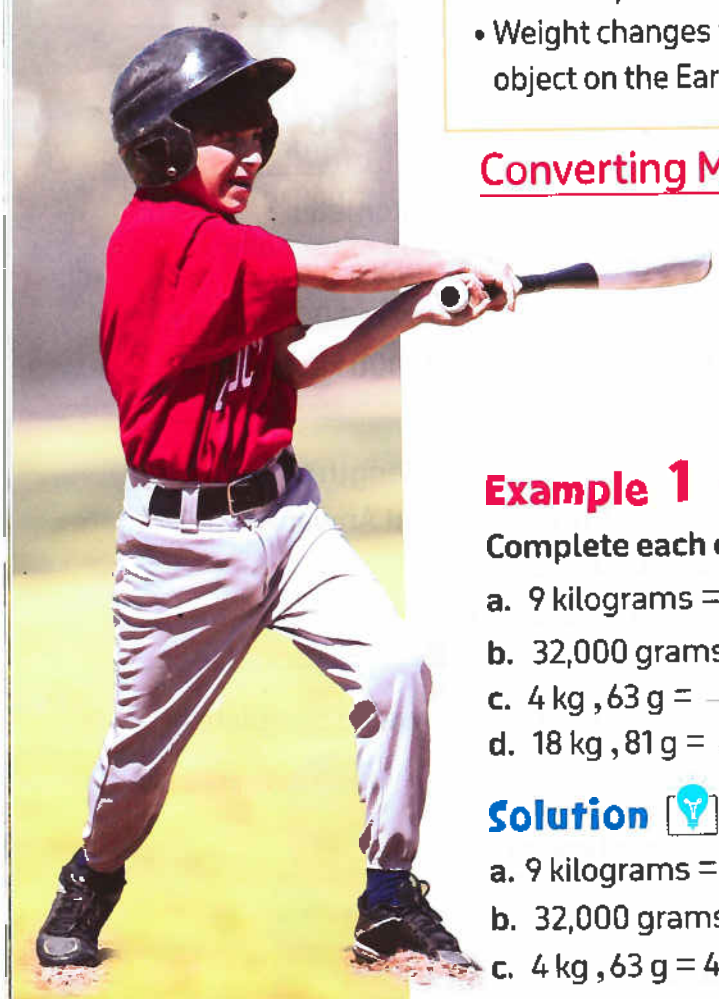
| kilometer | meter | centimeter |
|---|---|---|
| 60 | 60,000 | ? |

A. 600
B. 6,000
C. 60,000
D. 6,000,000

Lesson 2

# The Weight Can Wait

## "Metric Units of Mass"



### Learn

Matter is what all objects are made of. Mass is the amount of matter in an object. Metric units of mass are the gram (g) and the kilogram (kg).



The mass of a small paperclip is about 1 g



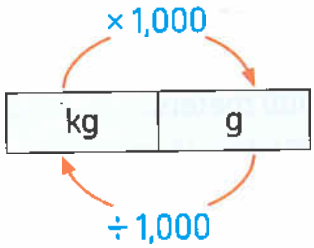
The mass of a baseball bat is about 1 kg

**Note**

Mass and weight are different.

- Mass stays the same no matter where you are.
- Weight changes from a place to another, for example the weight of any object on the Earth is different from its weight on the moon.

### Converting Metric Mass Units




1 kilogram = 1,000 grams

### Example 1

**Complete each of the following.**

a. 9 kilograms = _____ grams.

b. 32,000 grams = _____ kilograms.

c. 4 kg , 63 g = _____ g

d. 18 kg , 81 g = _____ g

### Solution

a. 9 kilograms = 9,000 grams

b. 32,000 grams = 32 kilograms

c. 4 kg , 63 g = 4,000 g + 63 g = 4,063 g

d. 18 kg , 81 g = 18,000 g + 81 g = 18,081 g

**Notes for parents :**

- Ask your child to find something at home of mass 20 g , and another something of mass 1 kg.

## Example 2

**Convert the masses into the units on the bar models.**

a.

| 1,560 g | |
|---|---|
| ——— kg | ——— g |

b.

| 27,027 g | |
|---|---|
| ——— kg | ——— g |

### Solution

a.

| 1,560 g | |
|---|---|
| 1 kg | 560 g |

[Think : 1,560 = 1,000 + 560]

b.

| 27,027 g | |
|---|---|
| 27 kg | 27 g |

[Think : 27,027 = 27,000 + 27]

## Example 3

An Oat bag of mass 250 g, Dalia bought 6 bags, what is the total mass of bags in kilograms and grams ?

### Solution

The total mass = (250 + 250) + (250 + 250) + (250 + 250)

= (500 + 500) + 500

= 1,000 + 500 = 1 kg , 500 g

1 kg

## Check your understanding

**What is the order of the following masses from least to greatest ?**

6 kg , 4,769 g , 980 kg , 68,000 g

• Let your child explain the relationship between the metric mass units "kg , g".

# Exercise 12

on lesson 2

# The Weight Can Wait

## "Metric Units of Mass"

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Complete. Tell whether you multiply or divide.

a. 1 kg = _____ g

b. 3 kg = _____ g

c. _____ kg = 5,000 g

d. 8 kg = _____ g

e. 7,000 g = _____ kg

f. 16,000 g = _____ kg

g. _____ kg = 30,000 g

h. 4 kg = _____ g

i. 7 kg, 414 g = _____ g

j. 1 kg, 10 g = _____ g

k. 6,800 g = _____ kg, _____ g

l. 2,456 g = _____ kg, _____ g

m. 35 kg, 86 g = _____ g (Kalyoubia 22)

n. 4,535 g = _____ kg, _____ g

o. 5,235 g = _____ kg, _____ g

p. 7,324 g = _____ kg, _____ g

**2.** Find each missing number.

a.

| 4,590 g | |
|---|---|
| _____ kg | _____ g |

b.

| 8,400 g | |
|---|---|
| _____ kg | _____ g |

c.

| _____ g | |
|---|---|
| 10 kg | 250 g |

d.

| _____ g | |
|---|---|
| 15 kg | 15 g |

**3.** Compare. Write (> , < or =).

a. 95 kg ◯ 950 g

b. 3 kg ◯ 30,000 g

c. 400 g ◯ 400 kg

d. 2 kg ◯ 2,000 g

e. 6 kg, 6 g ◯ 660 g

f. 2 kg, 530 g ◯ 24,000 g

**4.** A colony of black ants is estimated to weigh 3,493 grams.

Rewrite that number using kilograms and grams.

**5.** A different ant colony is estimated to weigh 14 kilograms and 89 grams.

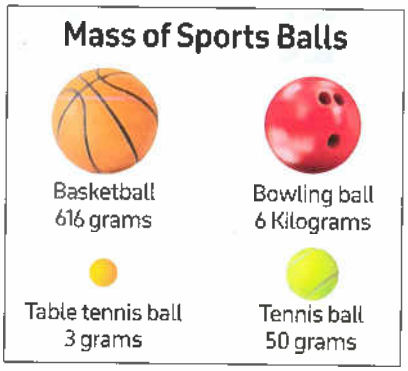
Rewrite that weight in grams.

**6.** The table shows the total weight of food harvested by a colony's army ants over 7 days. Use the table to answer the question.

- How much food did the workers harvest in their lifespan ?

| Day | Weight of food harvested |
|---|---|
| 1 | 45 grams |
| 2 | 60 grams |
| 3 | 50 grams |
| 4 | 35 grams |
| 5 | 40 grams |
| 6 | 55 grams |
| 7 | 60 grams |

**7.** **Use the picture.**




a. What is the order of the sports balls from greatest mass to least mass ?

b. A baseball has a mass of about 145 grams.

Mariam has 2 basketballs and 2 baseballs in her gym bag.

Is the mass of the balls in her bag more or less than 2 kg ? Explain.

# Multiple Choice Questions

Choose the correct answer.

**1.** The suitable mass of a rabbit is _____

A. 2,000 g B. 200 kg

C. 20 g D. 2 g

**2.** 9 kg = _____ g

A. 90 B. 900

C. 9,000 D. 90,000

**3.** 5 kg, 5 g = _____ g

A. 10 B. 505

C. 5 D. 5,005

**4.** Which of the following is the greatest mass?

A. 900 g B. 20,000 g

C. 70 kg D. 16 kg

**5.** 5,400 g = _____ kg, _____ g

A. 5 , 4 B. 5 , 40

C. 5 , 400 D. 50 , 40

**6.** 4,000 g = _____ kg

A. 4 B. 40

C. 400 D. 40,000

**7.** 8,600 g _____ 86 kg

A. >

B. <

C. =

**8.** A fizzy can of mass 300 g, Ahmed bought 4 cans. What is the total mass of cans in kilograms and grams?

A. 700 gm B. 1 kg, 3 g

C. 1 kg, 200 g D. 1 kg, 300 g

**9.** A class is investigating how units of mass are related. Afterward, the students write a statement to explain their findings. Which statement is correct?

A. A gram is equal to 1,000 kilograms.

B. A kilogram is equal to 1,000 grams.

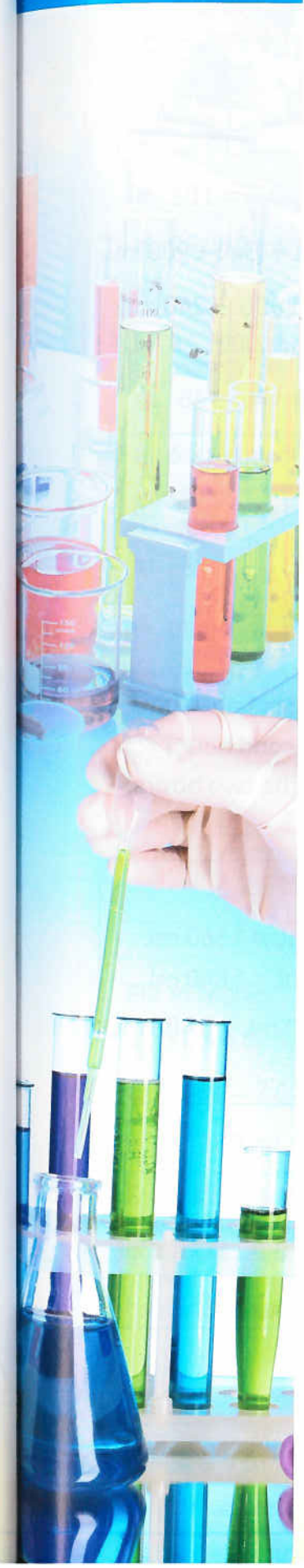
C. A kilogram is equal to 100 grams.

D. A gram is equal to 10,000 kilograms.

Lesson 3

# Fill It Up

## "Metric Units of Capacity"



## Learn

Capacity is the amount of liquid a container can hold.

- A Milliliter [mL] and a liter [L] are metric units that measure capacity.

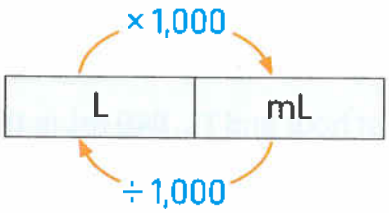


A milliliter is about 20 drops from an eyedropper.




The water bottle holds 1 liter [L] of water.

### Converting Metric Capacity Units




1 Liter = 1,000 milliliters

### Example 1

**Find each missing number.**

**a.** 8 Liters = _____ milliliters.

**b.** 56,000 mL = _____ L

**c.**

| 47,665 mL | |
|---|---|
| _____ L | _____ mL |

**d.** 13 L , 13 mL = _____ mL

### Solution

**a.** 8 Liters = 8,000 milliliters

**b.** 56,000 mL = 56 L

**c.**

| 47,665 mL | |
|---|---|
| 47 L | 665 mL |

**d.** 13 L , 13 mL

= 13,000 mL + 13 mL = 13,013 mL

**Notes for parents :**

- Ask your child to bring 2 containers might hold about 1 liter at home.

## Example 2

**Calculate.**

a. 4 L + 3,778 mL = _____ L, _____ mL

b. 2 L , 340 mL + 900 mL = _____ L, _____ mL

c. 5 L – 2,570 mL = _____ L, _____ mL

d. 24 L , 800 mL – 19 L , 510 mL = _____ L, _____ mL



### Solution

a. 3,778 mL = 3 L , 778 mL

4 L + 3 L , 778 mL = 7 L , 778 mL

b. 2 L , 340 mL + 900 mL = 2 L + [340 + 900] mL

= 2 L + 1,240 mL = 2 L + [1,000 + 240] mL

= 1 L

= 3 L , 240 mL

c. 5 L = 5 × 1,000 = 5,000 mL

5,000 mL – 2,570 mL = [5,000 – 2,570] mL

= 2,430 mL = [2,000 + 430] mL = 2 L , 430 mL

= 2 L

d.
$$\begin{array}{r} 24\text{ L , }800\text{ mL} \\ -\ 19\text{ L , }510\text{ mL} \\ \hline = 5\text{ L , }290\text{ mL} \end{array}$$

## Example 3

A truck consumed 1 L , 560 mL of gas in the first hour and 1 L , 840 mL in the second hour.
**Write the amount of gas consumed by the truck in liters and milliliters in the two hours.**

### Solution

$$\begin{array}{r} 1\text{ L , }560\text{ mL} \\ +\ 1\text{ L , }840\text{ mL} \\ \hline 2\text{ L , }1{,}400\text{ mL} \end{array}$$

= 2 L + 1 L , 400 mL

= 3 L , 400 mL

**Another Solution :**

1 L , 560 mL = 1,000 mL + 560 mL = 1,560 mL

1 L , 840 mL = 1,000 mL + 840 mL = 1,840 mL

The amount = 1,560 mL + 1,840 mL = 3,400 mL

= 3 L , 400 mL

## Check your understanding

**Complete.** a. 3 L , 250 mL + 4 L , 750 mL = _____ L

b. 7 L , 530 mL – 3 L , 400 mL = _____ L, _____ mL

c. 9 L – 3,930 mL = _____ mL

**Notes for parents :**

• Let your child explain the relation between the metric capacity units " L , mL".

# Exercise 13

on lesson 3

## Fill It Up

### "Metric Units of Capacity"

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Complete.

a. 6 L = ____ mL

b. 3 L = ____ mL

c. 9 L = ____ mL

d. 25 L = ____ mL

e. 50 L = ____ mL

f. 4,000 mL = ____ L

g. 29,000 mL = ____ L

h. ____ L = 10,000 mL

i. ____ mL = 73 L

j. ____ L = 560,000 mL

k. 8 L, 500 mL = ____ mL

l. 19 L, 324 mL = ____ mL

m. 84 L, 84 mL = ____ mL

n. 5,700 mL = ____ L, ____ mL

o. 6 L, 6 mL = ____ mL

p. 2,222 mL = ____ L, ____ mL

q. ____ mL = 61 L, 254 mL

r. 9,090 mL = ____ L, ____ mL

s. ____ L, ____ mL = 541,541 mL

t. 4 L, 234 mL = ____ mL

u. ____ mL = 7 L, 400 mL

v. ____ mL = 8 L, 910 mL

**2.** Find each missing number.

a.

| 6,360 mL | |
|---|---|
| ____ L | ____ mL |

b.

| 9,425 mL | |
|---|---|
| ____ L | ____ mL |

c.

| ____ mL | |
|---|---|
| 9 L | 900 mL |

d.

| ____ mL | |
|---|---|
| 25 L | 25 mL |

**3.** Fill in blanks.

a. 5 L + 6,000 mL = ____ mL

b. 9 L − 3,000 mL = ____ mL

c. 8 L − 2,000 mL = ____ L

d. 10 L + 1,495 mL = ____ L, ____ mL

e. 1 L, 500 mL + 3 L, 200 mL = ____ mL

f. 23 L, 244 mL + 2 L, 50 mL = ____ mL

g. 13 L, 200 mL − 3 L, 100 mL = ____ mL

h. 4 L, 540 mL − 4 L, 95 mL = ____ mL

i. 4 L, 375 mL + 5 L, 625 mL = ____ L

**4.** **Put (✓) to the correct statement or (✗) to the incorrect statement.**

a. 9 liters, 350 milliliters = 9,350 milliliters. [Giza - Haram 22] [ ]

b. 7,230 milliliters = 7,000 L and 230 mL. [ ]

c. The liter (L) is the basic unit of weight. [ ]

d. 3 L – 2,750 mL = 250 mL [ ]

e. 4 L + 3,200 mL = 3,204 mL [ ]

f. The capacity of a lemon juice bottle is 2 liters, if we want to distribute the juice in small cups each having a capacity of 200 mL, then the number of cups equals 10. [Cairo - Heliopolis 22] [ ]

**5.** List 6 L, 4,000 mL, 13,000 mL, 5 L from least to greatest.

_____

**6.** **Answer each of the following.**

a. 📖 A car is filled with 45 liters of petrol. How many milliliters would that be?

_____

_____

b. 📖 A family drank 1 liter, 500 milliliters of orange juice at breakfast. If there were 3 liters of orange juice before breakfast, how much orange juice is left?

_____

_____

c. 📖 Doha's fish tank contains 5 liters, 245 milliliters of water. If the tank can hold 10 liters of water, how much more water does she need to fill the tank?

_____

_____

d. 📖 A car was filled with 20 liters, 500 milliliters of petrol. At the end of the day, there were 15 liters, 250 milliliters left in the tank. How much petrol was used?

_____

_____

# Multiple Choice Questions

**Choose the correct answer.**

**1.** 13 L, 30 mL = _____ mL [Sharkia 22]

A. 43 B. 3,013 C. 1,330 D. 13,030

**2.** 6 L + 4,000 mL = _____ L

A. 10 B. 46 C. 64 D. 640

**3.** 7 L, 900 mL – 4 L, 400 mL = _____ L, _____ mL

A. 3, 400 B. 2, 500 C. 2, 400 D. 3, 500

**4.** 29,907 mL = _____ L, _____ mL

A. 29, 97 B. 29, 970 C. 2, 907 D. 29, 907

**5.** The capacity of a juice can is 1 liter and 500 mL, then its capacity in milliliters = _____ mL [Sharkia - Abo Kebeer 22]

A. 150 B. 1,500 C. 15,000 D. 1,005

**6.** Ahmed drunk 200 mL of apple juice from an apple juice bottle of 1 liter, what is the amount of left juice ?

A. 100 mL B. 300 mL C. 800 mL D. 1,200 mL

**7.** A water jug holds 8 liters. How many milliliters does it hold ?

A. 80 B. 800 C. 8,000 D. 80,0000

**8.** Zahra poured 2 liters of milk into a mixing bowl. How many milliliters of milk did she pour ?

A. 20 B. 200 C. 2,000 D. 20,000

Lesson 4

# Measurement and Unit Conversions

Just for Reading

## Learn How do you change from one metric unit of measure to another ?

### Problem

In a training for a marathon, Maged ran a distance of 5 kilometers. How many meters did he run ?

**Think :** 5 km = ☐ m

A kilometer is a larger unit than a meter.

When you change **large units to smaller units,** you need more of the smaller units, so **multiply** by 10 , 100 or 1,000.

| The distance in kilometers | | meters in 1 kilometer | | The distance in meters |
|---|---|---|---|---|
| 5 | × | 1,000 | = | 5,000 |

So, Maged ran 5,000 meters.

When you change **smaller units to larger unit,** you need fewer of the large units, so **divide** by 10 , 100 or 1,000

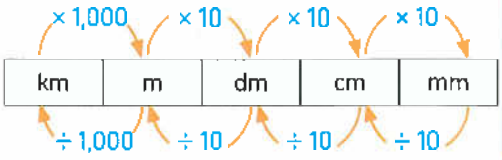
For Example : 300 millimeters = ☐ centimeters Since a millimeter is a smaller unit than a centimeter, divide.

| millimeters | | millimeters in 1 centimeter | | centimeters |
|---|---|---|---|---|
| 300 | ÷ | 10 | = | 30 |

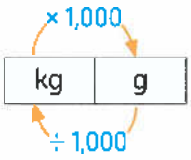
So, 300 millimeters = 30 centimeters.

## Remember

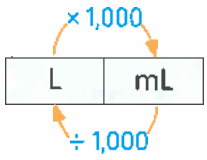
Converting metric length units




Converting metric mass units




Converting metric capacity units




**Notes for parents :**

- Ask your child to rewrite 2 liters in milliliters.



## Example 1

**Fill in the blanks.**

a. 6 m = _____ dm | b. 80 kg = _____ g | c. 2,000 mL = _____ L

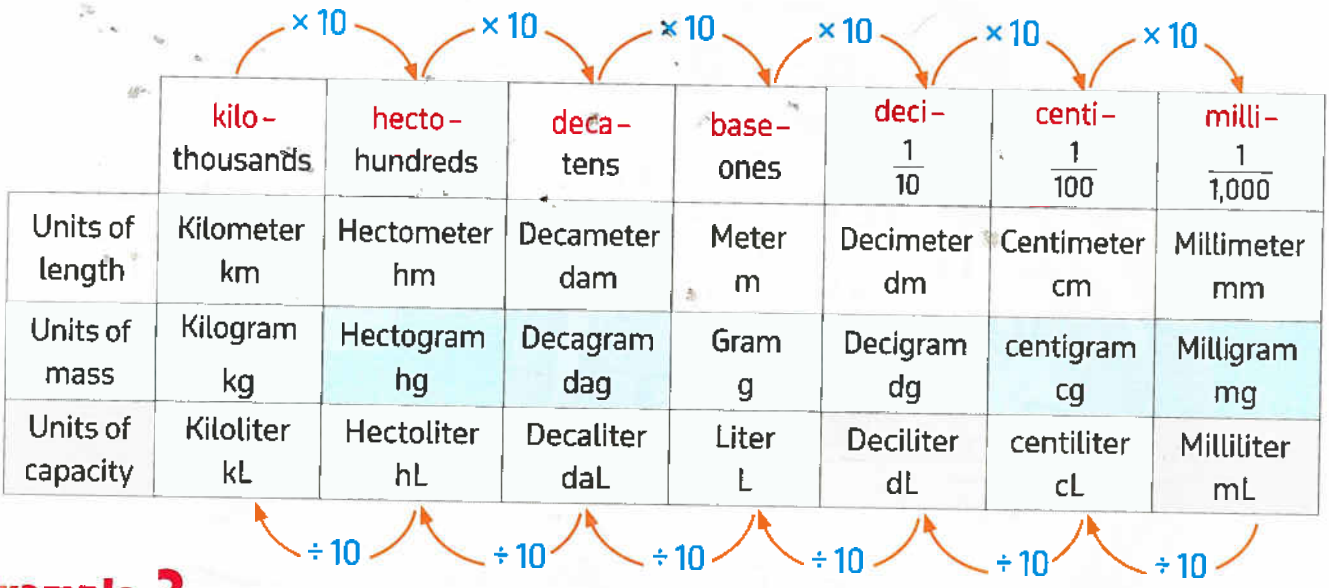
## Solution

a. 6 m = 6 × 10 = 60 dm | b. 80 kg = 80 × 1,000 = 80,000 g

c. 2,000 mL = 2,000 ÷ 1,000 = 2 L

## Enrich your knowledge

- Changing units in the metric system is like moving from one place-value position to another.




| | kilo– thousands | hecto– hundreds | deca– tens | base– ones | deci– $\frac{1}{10}$ | centi– $\frac{1}{100}$ | milli– $\frac{1}{1,000}$ |
|---|---|---|---|---|---|---|---|
| Units of length | Kilometer km | Hectometer hm | Decameter dam | Meter m | Decimeter dm | Centimeter cm | Millimeter mm |
| Units of mass | Kilogram kg | Hectogram hg | Decagram dag | Gram g | Decigram dg | centigram cg | Milligram mg |
| Units of capacity | Kiloliter kL | Hectoliter hL | Decaliter daL | Liter L | Deciliter dL | centiliter cL | Milliliter mL |

## Example 2

**Complete.**

a. 4 hectograms = _____ decagrams. | b. 6,000 mL = _____ dL

## Solution

a. To change hectogram to decagram, move one place to the right, so multiply by 10.
4 hectograms = 4 × 10 = 40 decagrams.

b. To change milliliter to deciliter, move two places to the left, so divide by 100.
6,000 mL = 6,000 ÷ 100 = 60 dL

## Check your understanding

**Fill in the blanks.**

a. 7,000 mL = _____ L | b. 500 cm = _____ m | c. 18 kg = _____ g

d. 8 km = _____ dm | e. 2 L = _____ cL | f. 4,000 g = _____ dg

- To change larger units to smaller units, multiply by 10 for each place you move to the right.
- To change smaller units to larger units, divide by 10 for each place you move to the left.

Concept

# 2 Time and Scaled Measurements



**Fast Fact**

*The first pocket watch was invented in the 1500's by Peter Henlein. It only had an hour hand. The minute hand was added in the late 1600's.*

| Lesson No. | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
| Lessons 5&6 | What Time Is It ? | Analog - Decade - Digital - Elapsed - Ratio Table | • Students will tell time to the minute.<br>• Students will explain relationships between units of time. |
| | How Long Does It Take ? | Conversion - Elapsed time - Open number line | • Students will explain elapsed time.<br>• Students will solve elapsed time problems.<br>• Students will explain the strategies they use to solve elapsed time problems. |
| Lesson 7 | Scaled Measurements | Line plot - Scale | • Students will create line plots to represent given data.<br>• Students will select an appropriate key and scale for a line plot.<br>• Students will write questions that can be answered by their line plots. |

Lessons
# 5&6

# • What Time Is It ?
# • How Long Does It Take ?



## Learn 1 What time is it ?

This morning, Amgd's family will take a ride on the railroad. The train leaves at 11 o'clock.




Amgd's family is in the station waiting room. The time right now is shown on the clock.



Has Amgd's family missed the train ?

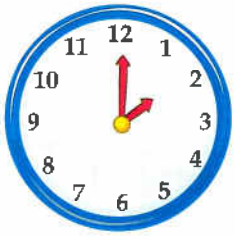
The time on the clock is 10:50 or 10 to 11.

So, Amgd's family has not missed the train.

## Example 1

**Write the time shown on the clock in two different ways.**

a.



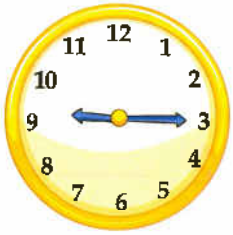
b.



c.



d.



### Solution

a. It is 2 o'clock , 2 : 00

b. It is half past 1 , 1 : 30

c. It is 5 to 8 , 7 : 55

d. It is quarter past 9 , 9 : 15

**Notes for parents :**

- Ask your child to count from 7:00 to 8:00 using 5-minutes intervals (7:00 , 7:05 , 7:10 , and so on).

## Units of Measuring Time

- Week , day , hour , minute , second , these units are used to measure time.

1 week = 7 days

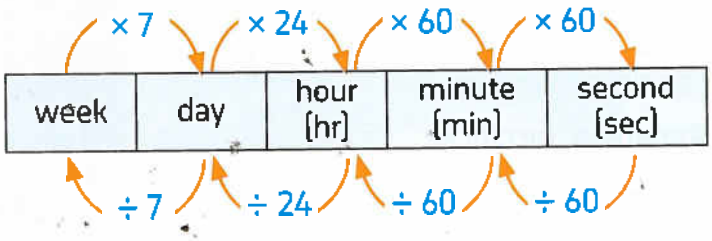
1 day = 24 hours (hr)

1 hour = 60 minutes (min)

1 minute = 60 seconds (sec)

## Converting Time Units

### First Using multiplication :




### Second Using repeated addition (Pattern) :

1 week = 7 days

| Week | 1 | 2 | 3 | 4 | ... |
|---|---|---|---|---|---|
| Day | 7 | 14 | 21 | 28 | ... |

×7

+7 +7 +7

1 day = 24 hours

| Day | 1 | 2 | 3 | 4 | ... |
|---|---|---|---|---|---|
| Hour | 24 | 48 | 72 | 96 | ... |

×24

+24 +24 +24

1 hour = 60 minutes

| Hour | 1 | 2 | 3 | 4 | ... |
|---|---|---|---|---|---|
| Minute | 60 | 120 | 180 | 240 | ... |

×60

+60 +60 +60

1 minute = 60 seconds

| Minute | 1 | 2 | 3 | 4 | ... |
|---|---|---|---|---|---|
| Second | 60 | 120 | 180 | 240 | ... |

×60

+60 +60 +60

## Example 2

**Complete.**

a. 6 weeks = _____ days.

b. 13 weeks = _____ days.

c. 5 days = _____ hours.

d. 8 hours = _____ minutes.

e. 9 minutes = _____ seconds.

f. 75 minutes = _____ hours, _____ minutes.

**Notes for parents :**

• Ask your child how many hours there are in a week.

## Solution

a. You can use multiplication : 6 weeks = 6 × 7 = 42 days.
or You can use repeated addition : 6 weeks = 7 + 7 + 7 + 7 + 7 + 7 = 42 days.

b. 13 weeks = 13 × 7 = 7 × (10 + 3) "Distributive property of multiplying"
(10) (3)
= (7 × 10) + (7 × 3) = 70 + 21 = 91 days.

c. 5 days = 5 × 24 = 5 × (20 + 4) "Distributive property of multiplying"
(20) (4)
= (5 × 20) + (5 × 4) = 100 + 20 = 120 hours.

d. 8 hours = 8 × 60 = 480 minutes.
× =

e. 9 minutes = 9 × 60 = 540 seconds.
× =

f. 75 minutes = 60 minutes + 15 minutes
= 1 hour , 15 minutes

**Note for (f)**
75 min
− 60 min
15 min

## Example 3

**Note**
You can use different strategies to convert units.

**Find the missing numbers.**

a. 4 weeks , 2 days = _____ days.

b. 5 days , 5 hours = _____ hours.

c. 3 hours , 20 minutes = _____ minutes.

d. 2 minutes , 30 seconds = _____ seconds.

## Solution

a. 4 weeks = 4 × 7 = 28 days.
So, 4 weeks , 2 days = 28 days + 2 days
= 30 days.

b. 5 days = 5 × 24 = 5 × (20 + 4)
= 100 + 20 = 120 hours
So, 5 days , 5 hours = 120 hours + 5 hours
= 125 hours.

c. 3 hours = 3 × 60 = 180 minutes.
So, 3 hours , 20 minutes
= 180 minutes + 20 minutes = 200 minutes.

d. 2 minutes = 2 × 60 = 120 seconds
So, 2 minutes , 30 seconds
= 120 seconds + 30 seconds = 150 seconds.

## Check your understanding

**Fill in the blanks.**

a. 5 hours , 10 minutes = _____ minutes.

b. 3 days , 10 hours = _____ hours.

c. 4 minutes , 11 seconds = _____ seconds.

d. 2 weeks , 2 days = _____ days.

- Remind your child the distributive property of multiplying.
- Remind your child how to multiply by multiples of 10.

## Learn 2 How long does it take ? (Elapsed time)

Elapsed time is the time that passes from the start to the end of an activity.

### Example 4

Laila entered a shopping mall, spent 2 hours , 40 minutes shopping , and spent 50 minutes at lunch in a resturant, and then left the mall.
**How long did Laila spend in the mall ?**



### Solution

**There are different ways to calculate the elapsed time.**

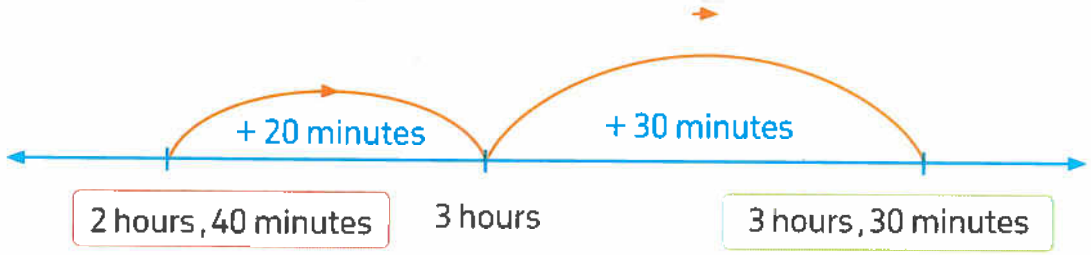
#### 1. Add Times

| | Hours | : | Minutes |
|---|---|---|---|
| | 2 | : | 40 |
| + | | : | 50 |
| | 2 | : | 90 |

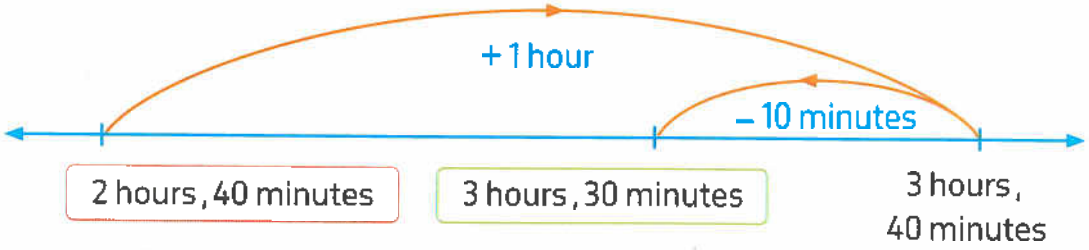
(Rename 90 minutes as 1 hour 30 minutes) 60 minutes = 1 hour

So, 2 hours + 1 hour + 30 minutes = 3 hours , 30 minutes

#### 2. Using a Time Line by Adding




#### 3. Using a Time Line by Subtracting




**Notes for parents :**

- Help your child find the elapsed time using different ways.

## 4. Convert Units

[Think : 1 hour = 60 minutes]

So, 2 hours = 2 × 60 = 120 minutes.

Then 2 hours , 40 minutes + 50 minutes
= 120 minutes + 40 minutes + 50 minutes
= 210 minutes

Then, 210 minutes = 180 minutes + 30 minutes
= 3 hours , 30 minutes

*Math tip*

210
− 60 → one hour
150
− 60 → one hour
90
− 60 → one hour
30

210 minutes = 3 hours , 30 minutes

## Example 5

Yasser finds that a cinema show is full when he arrives at 7 : 50 A.M. next show begins at 9 : 30 A.M.

**How long will he have to wait for the next show ?**




### Solution

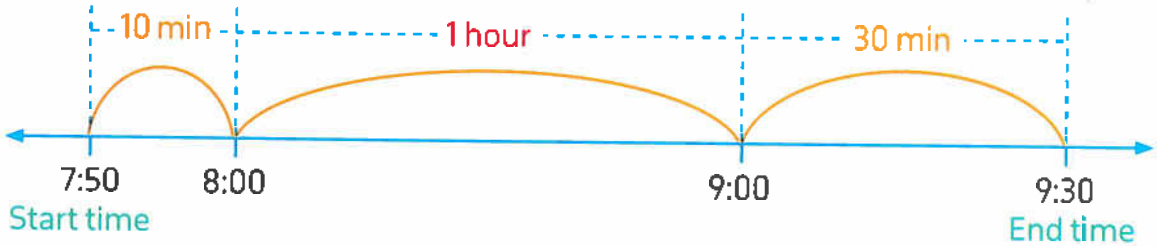
**There are different ways to calculate the elapsed time.**

### 1. Subtract Times

| Hours | : | Minutes |
|---|---|---|
| 8 (+60) | | 90 |
| ~~9~~ | : | ~~30~~ |
| − 7 | : | 50 |
| 1 | : | 40 |

**So,** he will wait 1 hour , 40 minutes for the next show.

### 2. Using a Time Line




**So,** he will wait 1 hour , 40 minutes for the next show.

## Example 6

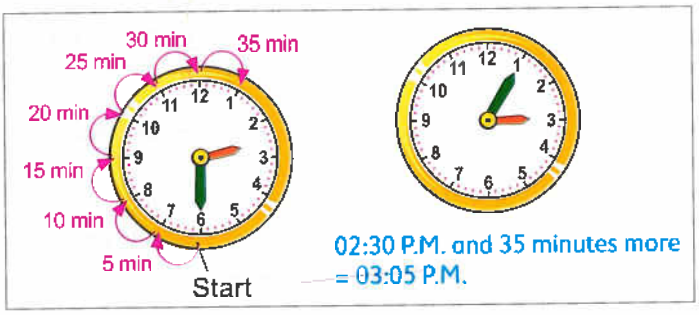
Bassem left school at 2 : 30 P.M. and arrived home 35 minutes later.

**What time did Bassem arrive home ?**

• Ask your child what time will be 2 hours after 11:35 A.M.

## Solution

### 1. Count Forward on a Clock




*Math tip*

*When counting forward on a clock, increase one hour for each cross on 12.*

So, Bassem arrived home at 3 : 05 P.M.

### 2. Using a Time Line




So, Bassem arrived home at 3 : 05 P.M.

## Example 7

**Calculate.**

a. 3 : 15 + 6 : 20 = ——— | b. 5 : 37 + 50 minutes = ——— | c. 7 : 35 – 40 minutes = ———

## Solution

a.

| Hours | | Minutes |
|---|---|---|
| 3 | : | 15 |
| + 6 | : | 20 |
| 9 | : | 35 |

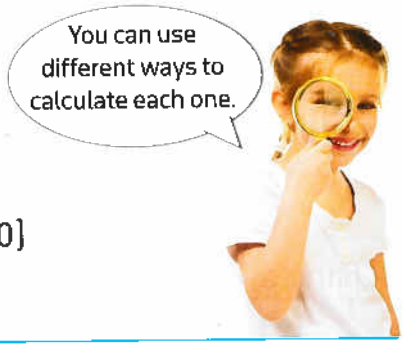
**Another Solution**

Hours

3 : 15 + 6 : 20 = (3 + 6) : (15 + 20)

Minutes

= 9 : 35




b.

| Hours | | Minutes |
|---|---|---|
| 5 | : | 37 |
| + | : | 50 |
| ~~5~~ | : | ~~87~~ |
| 6 | : | 27 |

87 min = 60 min + 27 min

= 1 hr + 27 min

c.

| Hours | | Minutes |
|---|---|---|
| ~~7~~ 6 | : | 95 ~~35~~ |
| – | : | 40 |
| 6 | : | 55 |

(+60)

## Check your understanding

Peter completed a bike ride 3 hours and 26 minutes after he started. He started the bike ride at 8 : 15 A.M. At what time did he finish ?

**Notes for parents :**

- Ask your child how many hours and minutes pass from the time he/she leaves for school until he/she returns home.

# Exercise 14

on lessons 5&6

## • What Time Is It ?
## • How Long Does It Take ?

REMEMBER  UNDERSTAND  APPLY  PROBLEM SOLVING  From the school book

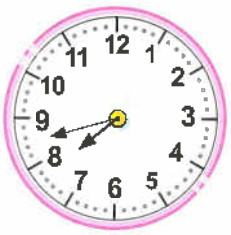
**1.** Write the time.

a. 

__ __ : __ __

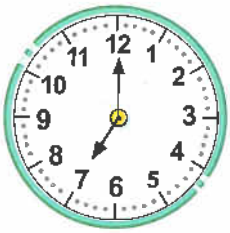
b. 

__ __ : __ __

c. 

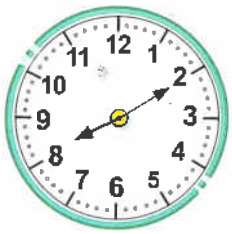
__ __ : __ __

**2.** Write the time in two ways.

a. 

__ __ : __ __

It's _____

b. 

__ __ : __ __

It's _____

c. 

__ __ : __ __

It's _____

**3.** Complete each of the following tables.

| Week | Day |
|---|---|
| 1 | 7 |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

| Day | Hour |
|---|---|
| 1 | 24 |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

| Hour | Minute |
|---|---|
| 1 | 60 |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

| Minute | Second |
|---|---|
| 1 | 60 |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

**4.** Complete.

a. 3 weeks = _____ days.

b. 2 hours = _____ minutes.

c. 3 days = _____ hours.

d. 2 weeks = _____ days.

e. 5 minutes = _____ seconds.

f. 10 days = _____ hours.

g. 3 hours = _____ minutes.

h. 2 minutes = _____ seconds.

i. 25 days = _____ weeks, _____ days.

j. 130 minutes = _____ hours, _____ minutes.

k. 50 hours = _____ days, _____ hours.

**5.** Solve the conversion problems.

a. 📖 10 hours , 30 minutes = _____ minutes.

b. A week , 2 days = _____ days. [Suez 22]

c. 4 minutes , 20 seconds = _____ seconds. [Gharbia – Samanoud 22]

d. 📖 4 days , 20 hours = _____ hours.

e. 📖 4 weeks , 2 days = _____ days.

f. 7 hours , 20 minutes = _____ minutes.

g. 📖 2 days , 12 hours = _____ hours.

h. 📖 5 minutes , 12 seconds = _____ seconds.

i. 1 day , 10 hours = _____ hours.

j. 📖 10 hours , 7 minutes = _____ minutes.

**6.** Compute the time.

a. 📖 3 : 25 + 45 minutes = _____

b. 📖 3 : 25 + 1 : 26 = _____

c. 7 : 50 – 39 min = _____

d. 📖 5 : 43 – 1 : 25 = _____

e. 📖 3 : 45 + 25 min = _____

f. 📖 2 : 45 + 6 : 17 = _____

g. 4 : 29 + 5 : 31 = _____

h. 8 : 20 – 17 min = _____

i. 📖 3 : 07 – 42 min = _____

j. 📖 5 : 07 – 2 : 13 = _____

**7.** Find the elapsed time.

a. Start : 1 : 20 P.M.
End : 9 : 50 P.M.

b. Start : 6 : 40 A.M.
End : 10 : 17 A.M.

c. Start : 4 : 27 P.M.
End : 8 : 00 P.M.

d. From : 6 : 43 A.M.
To : 9 : 43 A.M.

e. From : 6 : 15 A.M.
To : noon

f. From : 11 : 40 A.M.
To : 1 : 20 P.M.

## Story problems on measuring time

**8.** Answer the following.

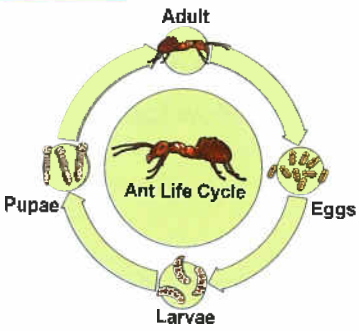
a. An average ant works for 19 hours a day. How many hours does an ant work in 3 days ?

b. Amir's family used their computer for 3 hours on Saturday, 4 hours on Sunday and 5 hours on Monday. How many total minutes were they on the computer ? How many seconds ?

c. A worker ant takes 240 naps a day. Each nap lasts 1 minute. About how many hours did the nap ant ?

d. **Use the life cycle of an ant to answer the questions that follow.**

1. Once the queen ant lays eggs, it can take anywhere from 7 to 14 days for them to hatch into the larvae stage. If it takes 10 days for a species of ant eggs to hatch, how many hours would that be ?



2. Adult ants feed the larvae liquid and solid food which helps them to grow quickly. Most move into the next stage, pupae, in 6 - 12 days. If it takes a larvae 6 days and 13 hours, how many total hours will that be ?

3. The pupae are white and similar to adult ants with their legs and antennae folded by the body and covered by a white or brown colored cocoon. They emerge as adults somewhere between 9 and 30 days. If it takes the ant 21 days, how many weeks will that be ?

## Story problems on elapsed time

**9. Answer the following.**

a. Mona's birthday party started at 7 : 00 in the evening. It took around 2 hours and 40 minutes for the party to get over. What is the time at which the party got over ?

b. The train was scheduled to arrive at 5 : 10 P.M. However, it was delayed for 57 minutes. What time was it when the train arrived ?

c. The game started at 7 : 50 P.M. It ended at 10 : 05 P.M .
How long was the game ?

**d.** Paula starts to do his school homework at 3 : 30 P.M. He spends 45 minutes in doing his math homework and 25 minutes in doing his science homework.
What is the time at which he finish both the homework ?

**e.** Jana and Maha have 5 hours to watch three movies that last 1 hour and 22 minutes, 2 hours and 12 minutes and 1 hour and 57 minutes.

1. Do the girls have enough time to watch all three movies ? How do you know ?

2. The girls decide to just watch the two shortest movies. If they start watching them at 5 : 30 P.M., what time will their movies end ?

**f.** 1. An ant's first nap of the day began at 7 : 45 A.M. and lasted for 60 seconds.
What time did the ant wake up ?

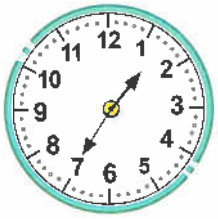
2. The ant then worked in the colony for 3 hours and 13 minutes before its next nap.
What time did the ant take his second nap ?

**g.** A worker ant went out to find food for the colony. It left at 6 : 30 A.M. and returned at 7 : 42 A.M. How long was that ant looking for food ?

# Multiple Choice Questions

**Choose the correct answer.**

**1.**



A. 1 : 07 B. 1 : 35
C. 2 : 07 D. 2 : 35

**2.** 7 hours = _____ minutes
A. 70
B. 140
C. 420
D. 700

**3.** 5 weeks, 5 days = _____ days.
A. 10 B. 25
C. 40 D. 50

**4.** 2 days and 2 hours = _____ hours.
A. 22 B. 4
C. 62 D. 50
[El-Beheira 22]

**5.** 1 day and 5 hours = _____ hours.
A. 29 B. 65
C. 15 D. 35 [Souhag 22]

**6.** 2 : 50 + 40 minutes = _____
A. 2 : 10 B. 3 : 10
C. 2 : 54 D. 3 : 30

**7.** 8 : 15 + 3 : 50 = _____
A. 12 : 05 B. 8 : 05
C. 12 : 55 D. 9 : 12

**8.** 6 : 43 – 50 minutes = _____
A. 6 : 53 B. 5 : 07
C. 5 : 53 D. 6 : 07

**9.** Adel spends 6 hours at school. If we want to calculate Adel's school day in minutes, we : _____
A. add 6 with 60 B. add 6 with 24
C. multiply 6 by 60 D. multiply 6 by 24
[Beni Suef 22]

**10.** At 9 : 20 A.M. a teacher set a timer for 30 minutes quiet reading time. What time will it be when the timer rings ?
A. 9 : 50 P.M. B. 9 : 50 A.M.
C. 9 : 10 A.M. D. 10 : 05 P.M.

**11.** On Saturday morning Peter began cutting the grass at 9 : 35 A.M. He finished at 10 : 43 A.M. How long did it take Peter to cut the grass ?
A. 1 : 08 B. 1 : 10 C. 2 : 08 D. 2 : 40

Lesson 7

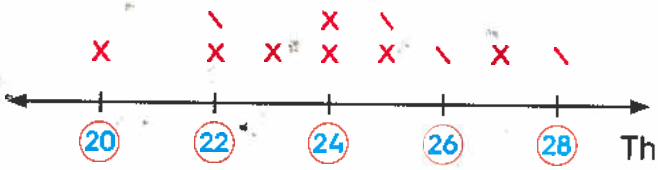
# Scaled Measurements

## Learn 1 Line plot

Line plot is a graph that shows the data as X's above a number.

### Example 1

Players' ages of handball team → What the line plot shows




Key: X = 2 players, \ = 1 player

The scale of this line plot is 2

- What does this line plot show ? Players' ages of handball team.
- What does each X represent ? 2 players
- What is the scale for this line plot ? 2
- How many players in the team are 24 years ? 4
- How many players in the team are 27 years ? 2
- How many players in the team are 22 years ? 3
- How many players are represented in all ? 18

## Learn 2 Graduated scales

- You can look scales as ruler, metric stick, analog clock, graduated cylinders, ...
- Graduated cylinder is a graduated tool like ruler from 0 to 100 , and it holds 100 mL.

For Example :
There is 60 mL of liquid in the quaduated cylinder.



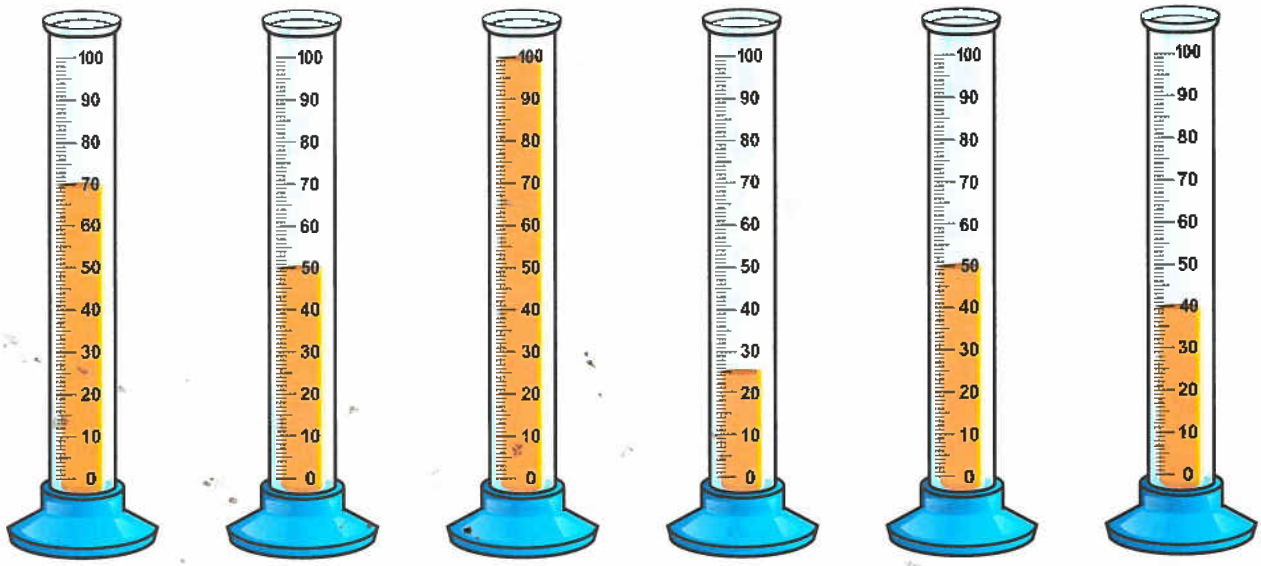


**Notes for parents :**

- Remind your child that a number line can start at any number and the numbers go on forever.

## Example 2

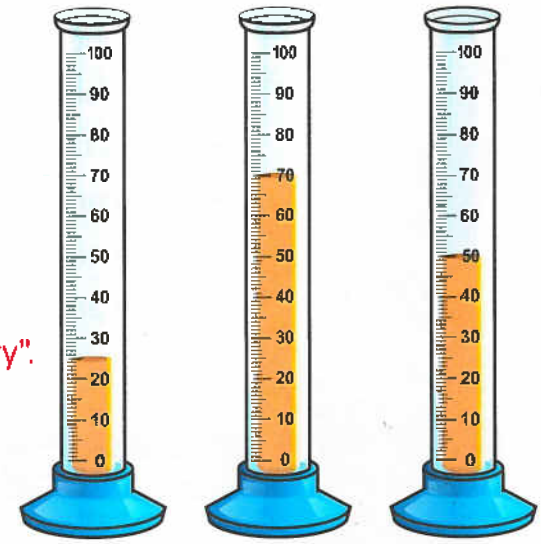
**Look at the graduated cylinders and answer the questions.**




a. What title would you use to represent this data ?

b. What key would you use to represent this data ?

c. What scale would you use to represent this data ?




### Solution

a. Liquid in the graduated cylinders "Answers may vary".

b. One "Because it is a small set of information".

c. 5 or 10

### Check your understanding

A line plot has a scale of 3. The first number on the scale is 12. There are 5 marks on the line plot. What is the last number on the line ?

**Notes for parents :**

• Help your child to choose a suitable title, for the previous graduated cylinders.

# Exercise 15

on lesson 7

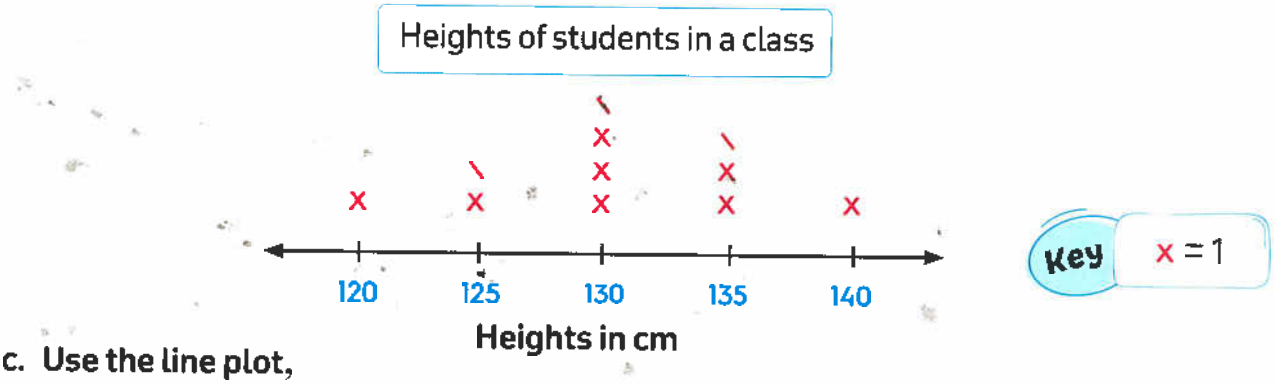
## Scaled Measurements

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING | From the school book

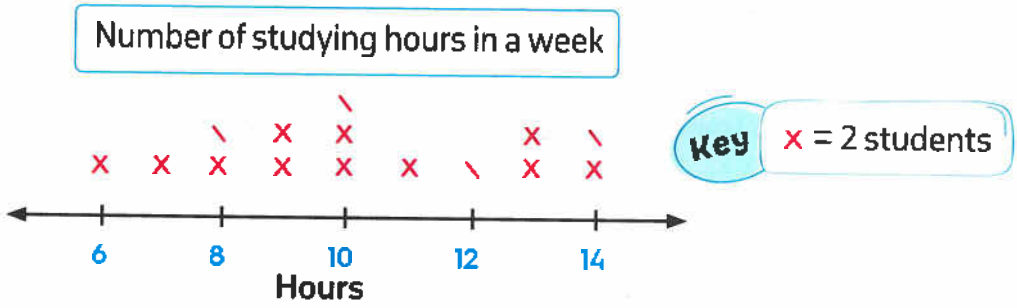
**1. Complete the following.**

a. The key of a line plot indicates that each x = 2 children. One of the data points on the line has 7 x's, then it represents _____ children.

b. The scale of the opposite line plot is _____

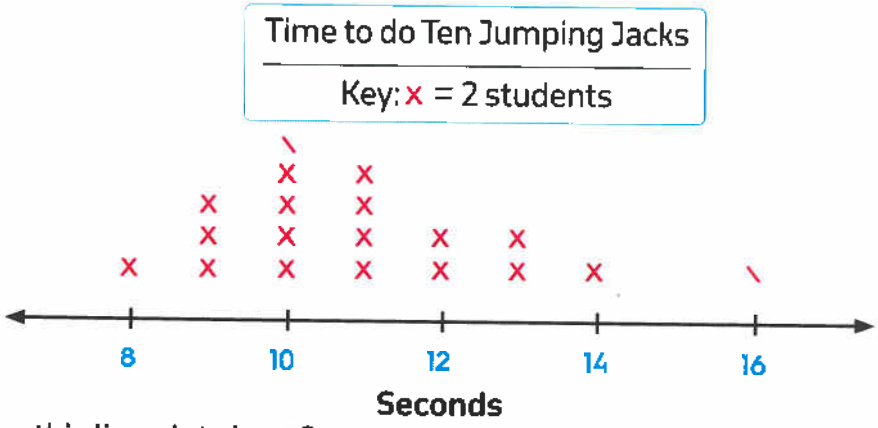



c. Use the line plot,



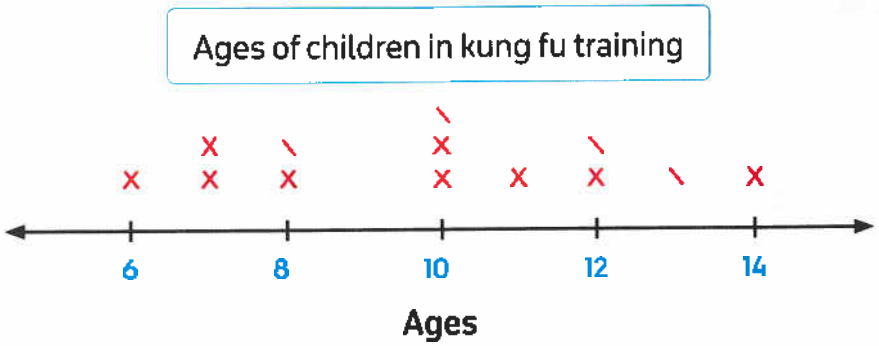

The number of students studied 10 hours in a week is _____

**2. Look at the line plot and be prepared to answer the following questions.**




1. What does this line plot show ?
2. What does each X represent ?
3. How many students are represented ?
4. What is the scale for this number line ?

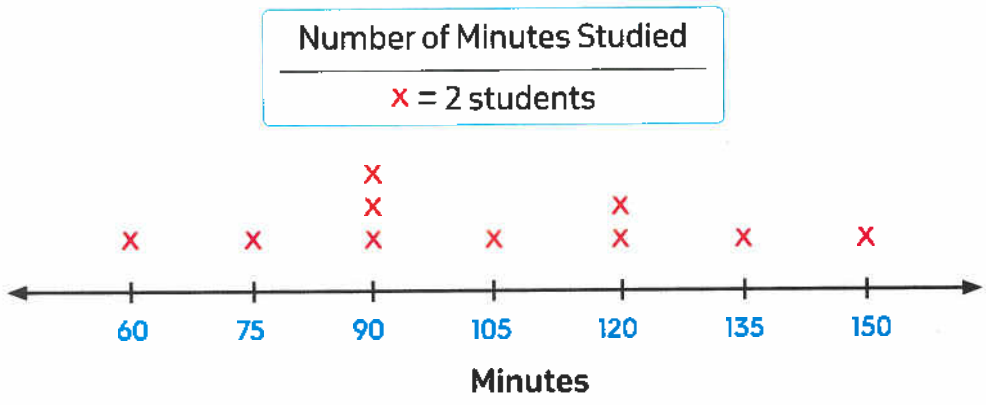
**3. Use the line plot to answer the questions.**




Key: Each x stands for 2 children

1. What does this line plot represent?
2. What is the scale for this line plot?
3. How many children in the training are 10 years?
4. How many children are in kung fu training in all?
5. What age is the greatest number of children?

**4. Use the following line plot to answer the following questions.**




1. What is being measured?
2. What is the scale for the number line?

   For problems 3 - 5, record your answer in total minutes and then convert your answer to hours and minutes.

3. What was the least amount of time spent studying?
4. What was the most amount of time spent studying?
5. What was the most common amount of time spent studying?

**5.** **The following table shows the masses of Ahmed's friends in a class in kilograms**

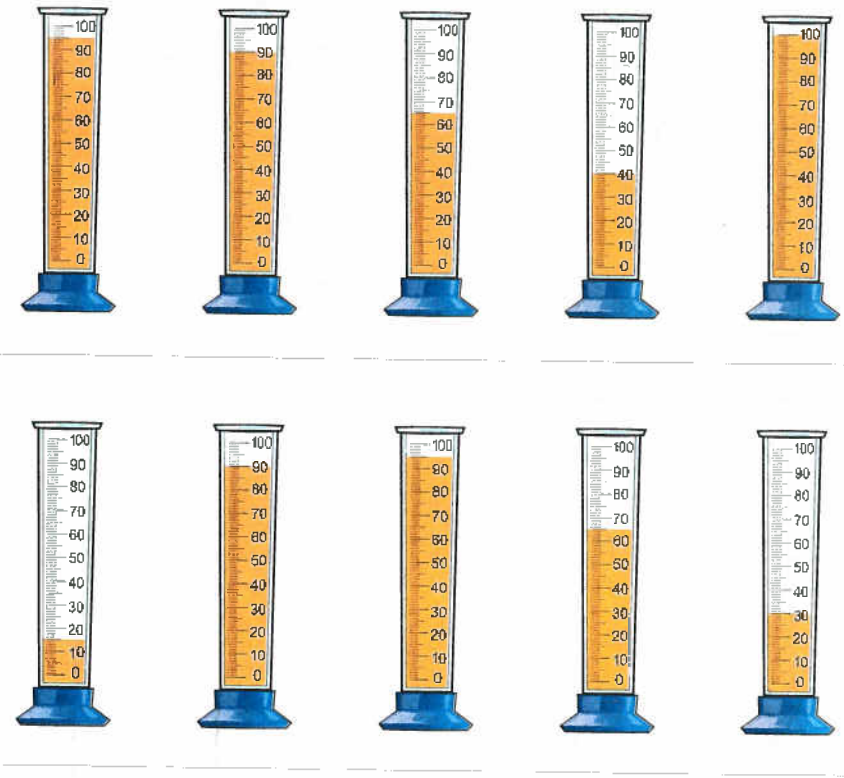
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 46 | 40 | 44 | 47 | 42 | 42 | 41 | 46 | 43 | 47 |
| 42 | 44 | 47 | 40 | 44 | 46 | 43 | 48 | 46 | 44 |

1. Create a line plot that shows this measurement data.

Key

2. What is the number of Ahmed's friends in the class ?
3. How many friends of mass 42 kg ?
4. What mass is the greatest number of friends ?

**6.** **Look at the graduated cylinders and answer the questions.**

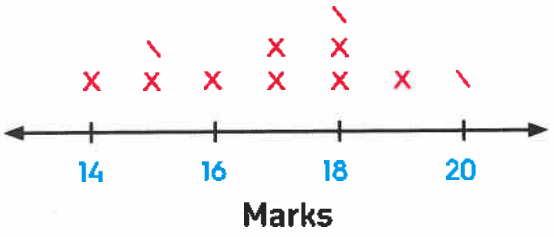


1. What title would you use to represent this data ?
2. What key would you use to represent this data ?
3. What scale would you use to represent this data ?

# Multiple Choice Questions

**1.** Use the line plot,

Marks of students in an exam




Key: x = 2 students

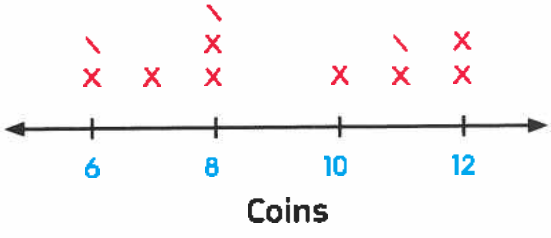
**How many students are in the class in all ?**

A. 14 B. 19

C. 21 D. 22

**2.** Use the line plot,

Saved coins




Key: Each x stands for 2 children

**What is the scale for this line plot ?**

A. 1 B. 2

C. 3 D. 4

**3.** A line plot has a scale of 5. The first number on the scale is 15. There are 6 marks on the line plot. What is the last number on the line ?

A. 10 B. 20

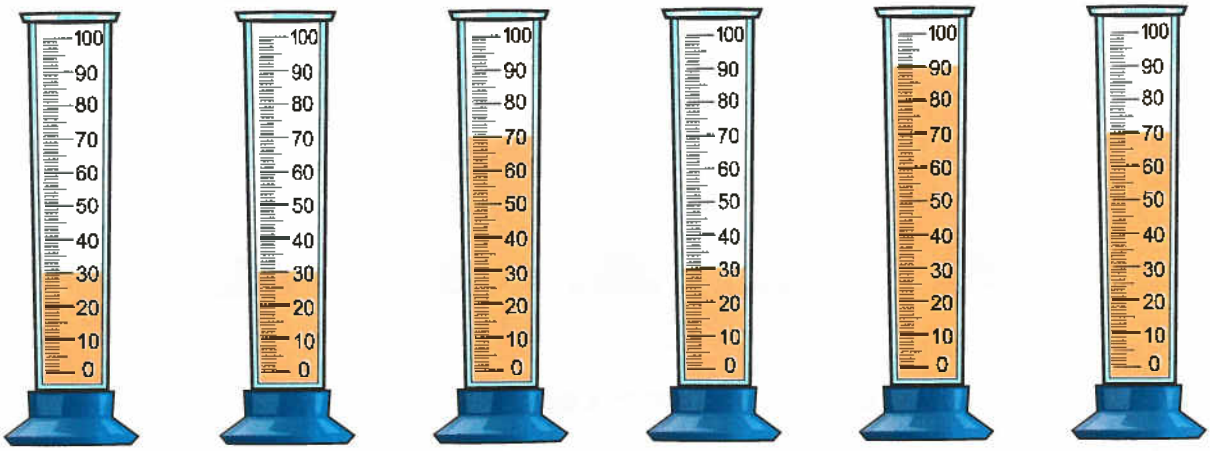
C. 30 D. 40

**4.** The key of a line plot indicates that each X = 4 children. One of the data points on the line has 6 X's. How many children does that represent ?

A. 12 B. 24

C. 36 D. 48

**5.** Look at the graduated cylinders,




What scale would you use to represent this data ?

A. 10 B. 50 C. 100 D. 200

# Concept 3 Measurement All Around

**Fast Fact**

*Blue whale is the largest animal to have ever lived on Earth, blue wales can grow to over 30 m long and weight more than (130,000 kg) that's longer than three buses and heavier than three lorries !*



| Lesson No. | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
| Lesson 8 | Measuring The World Around Me. Part 1 | Review vocabulary as needed. | • Students will add and subtract to solve problems.<br>• Students will solve story problems involving measurement.<br>• Students will apply a variety of strategies to solve story problems. |
| Lesson 9 | Measuring The World Around Me. Part 2 | Review vocabulary as needed. | • Students will multiply and divide to solve problems.<br>• Students will solve story problems involving measurement.<br>• Students will apply a variety of strategies to solve story problems. |

Lesson 8



# Measuring The World Around Me

## "Part 1 : Use Addition and Subtraction"

### Problem



Ali and Giovanni each caught a fish.
The two fish have
a mass 8,250 g
The mass of Giovanni's fish
is 3 kg, 530 g
**What is the mass of Ali's fish ?**

### Understand

- What are you asked to find ?
- What information will you use ?
- Is there any information you will not use ? If so, what ?

### Plan

- What strategies can you use to solve the problem ?
  - *Convert measurement units first.*
  - *Use subtraction standard algorithm.*

### Solve

- How can you use the strategy to solve the problem ?

The mass of Giovanni's fish = 3 kg, 530 g [**Think :** 1 kg = 1000 g]
= 3,530 g

The mass of Ali's fish = $8{,}250 - 3{,}530$
= 4,720 g
= 4 kg, 720 g

### Check

- What other strategy could you use ?

**Notes for parents :**

- In this lesson, your child will use addition and subtraction to solve multistep story problems involving length, mass, capacity, and time.

## Example 1

Abeer purchased 7 kilograms of sugar, 10 kilograms of flour, 500 grams of cocoa, 275 grams of pecans, and 225 grams of coconut.

**What is the total mass of her groceries in kilograms ?**

### Strategies

- Estimate
- Use smaller numbers
- Draw a picture of model (number line, bar model, diagram, and so on)
- Write an equation with the unknown
- Use the standard algorithm
- Find a hidden question
- Convert measurement units first
- Make a benchmark number

### Solution

The total mass = 7 kg + 10 kg + 500 g + 275 g + 225 g

= (7 + 10) kg + (500 + 275 + 225) g (Associative property)

= 17 kg + (775 + 225) g

= 17 kg + 1,000 g

= 17 kg + 1 kg (Convert measurement units)

= 18 kg

## Example 2

A tailor used 1 m, 35 cm of cloth to make a shirt and 2 m, 15 cm to make trousers.

**What is the total length of cloth used by the tailor to make a shirt and trousers ?**

### Solution

The total length = 1 m + 35 cm + 2 m + 15 cm

= (1 + 2) m + (35 + 15) cm

(Commutative and associative)

= 3 m + 50 cm

= 3 m and 50 cm = 350 cm

### Another strategy

- Convert measurement units first

  1 m, 35 cm = 135 cm

  2 m, 15 cm = 215 cm

  The total length = 135 + 215

- Use Break up and Bridge strategy

  135 = 100 + 30 + 5

  215 = 200 + 10 + 5

  300 + 40 + 10 = 350 cm

• Ask your child what strategy he/she decided to use, and why he/she chose it.

## Example 3

A fish tank with a capacity of 92 liters is filled with 23,000 milliliters of water.
**How many more liters of water are needed to fill it up completely ?**

### Solution

Convert measurement units first.

23,000 mL = 23 L [Think : 1,000 mL = 1 L]

Number of liters needed to fill up the tank

$\overset{8\ 12}{=}$ 92 L – 23 L

= 69 L (Standard subtraction algorithm)

Another way to subtract 92 – 23

Add to subtract strategy

23 + 7 = 30

30 + 60 = 90

90 + 2 = 92

So, 7 + 60 + 2 = 69

Then 92 – 23 = 69

## Example 4

Ahmed studied from 3 : 15 – 4 : 45. His sister, Sarah studied from 4 : 30 – 6 : 15
**Who studied longer and by how much ?**

### Solution

Ahmed →

| | hr. | min. |
|---|---|---|
| | 4 | 45 |
| – | 3 | 15 |
| | 1 | 30 |

The time of Ahmed = 1 hr. and 30 min.
= 60 + 30 = 90 min.

Sarah →

| | hr. | min. | |
|---|---|---|---|
| | $\overset{5}{\cancel{6}}$ | 15 $\overset{75}{}$ | (60 + 15) |
| – | 4 | 30 | |
| | 1 | 45 | |

The time of Sarah = 1 hr. and 45 min.
= 60 + 45 = 105 min.

So, Sarah studied longer than Ahmed and the difference = 105 – 90 = 15 min.

### Check your understanding

1. Two wooden planks of lengths 12 m, 60 cm and 18 m, 63 cm are glued together to make a long wooden bridge. What is the total length of the bridge ?

2. Ashraf purchased 7 kg, 200 g of sugar, 9 kg, 395 g of rice. What is the total weight which Ashraf purchased ?

**Notes for parents :**

- Ask your child to use different strategies to solve the problems.

Exercise 16

on lesson 8

# Measuring The World Around Me
## "Part 1 : Use Addition and Subtraction"

REMEMBER UNDERSTAND APPLY PROBLEM SOLVING

From the school book

## First : Problems involving length

**1.** One box is 44 cm, 5 mm tall. Another box is 35 cm. tall. How tall will the boxes be if both are stocked one on top of the other ?

### Strategies

- Estimate
- Use smaller numbers
- Draw a picture of model (number line, bar model, diagram, and so on)
- Write an equation with the unknown
- Use the standard algorithm
- Find a hidden question
- Convert measurement units first
- Make a benchmark number

**2.** Sameh has 63 m of ribbon. If he cuts 56 m, 21 cm ribbon from it, what length of ribbon will be left ?

**3.** Rania is measuring two ant lines. Colony A's ant line is 30 centimeters long, and Colony B's ant line is 500 millimeters long. How many centimeters long are the two ant lines together ?

**4.** An ant from Colony A walked 2 kilometers in a day. An ant from Colony B walked 3,000 meters in a day. Which ant walked the farthest and how much farther in kilometers did it walk ?

**5.** Taher grew 10 centimeters in 1 year. He is now 1 meter, 6 centimeters tall. How many centimeters tall was Taher 1 year ago ?

## Second : Problems involving mass

6. Zeina purchased 8 kilograms of sugar, 10 kilograms of flour, 500 grams of cocoa, 225 grams of pecans, and 275 grams of coconut. What is the total mass of her groceries in kilograms ?

7. In Colony A, the ants collect 950 grams of food. If they consume 25 grams of food on Monday and 37 grams of food on Tuesday, how many grams of food are left ?

8. Dalia's dog weighs 15 kilograms. When she took it to the vet, she learned that her dog gained 2,000 grams. How many more grams will Dalia's dog need to gain before it weighs 20 kilograms ?

9. The potatoes Aya bought weight 2 kilograms, 920 grams. Her onions weighed 1,075 grams less than the potatoes. How much did the potatoes and onions weight together ?

10. Ali's cat weighs 7 kilograms and his dog weighs 17 kilograms. When Ali took them to the vet, he learned that his cat gained 450 grams and his dog gained 120 grams. How much do his two pets weigh in all now ?

## Third : Problems involving capacity

11. A fish tank with a capacity of 100 liters is filled with 20,000 milliliters or water. How many more liters of water are needed to fill it up completely ?

12. A milkman sold 46 L, 200 mL of milk on 3 days of a week and 53 L, 195 mL of milk in the next 2 days. What quantity of milk did he sell in the 5 days ?

13. 🕮 Mr. Emad bought four 2-liter bottles of soda for the Primary 4 picnic. If there were 2 liters and 829 milliliters of soda remaining at the end of the picnic, how many milliliters of soda did the students drink ?

14. 🕮 Mrs. Basma bought 2 cartons of milk which are 2 liters each. Her three children finished 1,200 milliliters on Monday and 950 milliliters on Tuesday. How many milliliters of milk are left ?

## Fourth : Problems involving time

15. A bus leaves for Cairo at 4 : 30 P.M. It takes 1 hr, 25 min. to reach there. At what time will it reach at Cairo ?

16. The duration of a film show is 3 hr, 15 min. It starts at 6 : 30 P.M. When will it end ?

17. 🕮 A pharaoh ant grows from egg to adult in 45 days. A carpenter ant grows from egg to adult in 12 weeks. Which species takes longer to grow from egg to adult ? How much longer ?

18. 🕮 Worker ants take power naps totaling up to 250 minutes a day. A queen ant may sleep up to 9 hours a day. Which ant sleeps longer and by how many minutes ?

19. 🕮 Ziad played his video game from 3 : 45 P.M. until 5 : 10 P.M. He is only allowed to play video games for 80 minutes. Has he broken the rule ? If no, why not ? If yes, by how many minutes ?

## Challenge

20. Amal has a rope of length 40 m. She gave 12 m, 53 cm to Amgad, 18 m, 35 cm to Bassem and 9 m, 7 cm to Ayman. What length of rope is still left with Amal ?

# Multiple Choice Questions

**Choose the correct answer.**

**1.** Shaimaa poured 5 L of water into a beaker. During an experiment, she added 200 mL of water.
How much water was in the beaker at the end of the experiment?

A. 205 mL
B. 2,500 mL
C. 4,800 mL
D. 5,200 mL

**2.** Bassem bought 3 meters of rope. He then cut off 170 centimeters of rope to glue around the edge of a pot. How many centimeters of rope does Bassem have left?

A. 173
B. 470
C. 130
D. 167

**3.** Hany ran 1,800 meters on Saturday and 3 km , 200 m on Sunday. How many meters did be run in all?

A. 5
B. 1,400
C. 4,000
D. 5,000

**4.** A box contains 2 bags of sugar. If the mass of each one is 1 kg and 300 g , what is the total mass in grams?

A. 600
B. 2,600
C. 2,800
D. 1,300

**5.** If Vector studied from 4 : 10 to 5 : 00 , then he studied _____ minutes.

A. 60
B. 110
C. 40
D. 50

**6.** Peter is over weight. He is 105 kg. If his aim is to loss 500 g per week, then Peter's weight after 2 weeks is _____ kg.

A. 104
B. 105
C. 106
D. 107

**7.** Mr. Bassem bought 3 cartons of juice which are 2 litres each. If his three children finished 4,700 milliliters , then the left of juice is _____ mL

A. 2,300
B. 2,700
C. 300
D. 1,300



Lesson
9

# Measuring The World Around Me

## "Part 2 : Multiplying and Division"



### Example 1

Wael has a 20 meter-long piece of wood. He wants to cut it into 4 equal lengths. **How long should each cut piece be in meters ?**

**How long will each of these pieces be in centimeters ?**

### Solution

- The length of each piece in meters = 20 ÷ 4 = 5 m [Think : 4 × 5 = 20]
- The length of each piece in centimeters = 5 × 100
  = 500 cm [Think : 1 m = 100 cm]

### Example 2

A cow gives 22 L and 500 mL of milk daily.
If the milkman has 10 cows, **how much milk does he got in liters in a day ?**
And if the daily milk is filled in bottles of capacity 1,000 mL,
**how many bottles will be required ?**




### Solution

- 22 L , 500 mL = 22, 500 mL
- The milk from 10 cows in mL = 22,500 × 10 = 225,000 mL
  The milk from 10 cows in L = 225,000 ÷ 1,000 = 225 L
- The capacity of one bottle is 1,000 mL = 1 L
  Then the milkman needs 225 bottles.

**Notes for parents :**

- In this lesson, your child use multiplying and division to solve multistep story problems involving length, mass, capacity, and time.

## Example 3

A box can carry a total mass of 10 kg. Laptops have to be packed inside the box.

If the mass of each laptop is 2,000 g, **how many laptops can be packed inside the box ?**

### Solution

- The mass of each laptop = 2,000 g = 2 kg [**Think :** 1,000 g = 1 kg]
- The number of laptops can be packed inside the box = 10 ÷ 2 = 5 laptops

## Example 4

Mona is stringing beads to make a necklace. She is using 30 of the 8 mm beads, 70 of the 4 mm beads, and 40 of the 2 mm beads. **How long will her finished necklace be in cm ?**

### Solution

30 of 8 mm = 30 × 8 = 240 mm

, 70 of 4 mm = 70 × 4 = 280 mm

and 40 of 2 mm = 40 × 2 = 80 mm

So, the length of her finished necklace = 240 + 280 + 80 = 600 mm = 600 ÷ 10 = 60 cm

## Example 5

Salwa is a runner. She spends half an hour every day running.

**How many minutes in total does she run for during a 9-day period ?**

### Solution

What she runs each day = Half an hour = 30 min.

What she runs for during a 9-day period = 30 × 9 = 270 min.

### Check your understanding

In a relay race, 4 people ran 3,000 meters each. In a distance race, John ran 15 kilometers.

**Who ran farther, the whole relay team or John ? How much farther ?**

_____

_____

**Notes for parents :**

- Tell your child that multistep problem needs to know what information do you have to help you solve the problem.
- Help your child read and understand to figure out the problem and use the information to decide which operation to use.

Exercise 17

on lesson 9

# Measuring The World Around Me
## "Part 2 : Multiplying and Division"

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

### First : Problems involving length

1. Ahmed has a 12 meter-long piece of wood. He wants to cut it into 3 equal lengths. How long should each cut piece be in meters ? How long will each of these pieces be in centimeters ?

2. Ants walk about 5,000 meters each day. How many kilometers do ants walk in 6 days ?

3. An ant may walk up to 5 km per day. If the ant continues this for 20 days, how many meters will the ant walk ?

4. Sara travelled 9 days continuously. She travelled 5,000 meters each day. How many kilometers did she walk in all ?

### Second : Problems involving mass

5. Ehab is a weightlifter. He has a mass of 100 kilograms. His aim is to gain 500 grams per week. If he does that for 5 weeks, what will his mass be at the end ?

6. A colony of ants eats approximately 2,000 grams of food each day. If the ants have 10 kilograms of food stored, how many days will the food last ?

**7.** Mariam was having a picnic with her family and counted 10 ants walking by. If each ant weighed 1 gram and carried 50 times its body weight, how much weight was being carried in all ?

## Third : Problems involving capacity

**8.** A water purifier cleans 10 L , 50 mL of water each day. How much water will be cleaned by the cleaner in 10 days ?

**9.** Ayman is a runner. While Ayman is in training, he needs to drink 500 milliliters of water 4 times per day. How many liters of water will that be for 1 week ?

**10.** Mostafa has 32 liter bottles of soda. If he divides the soda equally between himself and his 7 friends, how much soda will each person have ?

## Fourth : Problems involving time

**11.** Samira is studying for an upcoming math test. If she studies for 30 minutes a day, how many hours will she have spent studying in 8 days ?

**12.** Amany is a swimmer. She spends half an hour every day swimming. How many minutes in total does she swim for during a 5-day period ?

## Challenge

**13.** An ant is at the bottom of a 20-meter deep well and is trying to get to the top. Each day it climbs 4 meters up, but each night it slides back 2 meters. How many days does it take for it to get out of the well ?

# Multiple Choice Questions

**Choose the correct answer.**

**1.** Sami has 25 meter-long piece of cloth. If he wants to cut it into 5 equal pieces, the length of each one equals _____

A. 4 m
B. 5 m
C. 50 cm
D. 125 cm

**2.** If Mina travelled 10 days continuously. He travelled 4,000 meters each day, then he walk in all about _____ kilometers.

A. 4
B. 40
C. 400
D. 4,000

**3.** If Mohamed rides his cycle 10 km per day, then he covers _____ in 5 days.

A. 2 km
B. 5 km
C. 5,000 m
D. 50 km

**4.** If the total weight of 10 balls having same weight is 130,000 grams, then the weight of each ball is _____ kg.

A. 130
B. 1300
C. 13
D. 13,000

**5.** If ants walk about 3,000 meters each day, then the ants walk _____ km in 5 days.

A. 3
B. 150
C. 15,000
D. 15

**6.** An ant walk up to 2 km per day. If the ant continues this for 10 days, then the ant will walk about _____ meters.

A. 200
B. 2,000
C. 20,000
D. 200,000

**7.** Thabit has a piece of rope that is 750 centimeters long. He needs to be able to cut this into 6 pieces of rope that are each 110 centimeters long. Is Thabit's rope long enough ?

A. No, because $750 \times 6 = 4{,}500$ , $4{,}500 > 750$
B. Yes, because $110 \times 6 = 660$ , $660 < 750$
C. No, because $750 \div 6 = 125$ , $125 > 110$
D. Yes, because $750 - 110 - 6 = 634$ , $634 < 750$

# Unit Three Assessment




**1.** Put (✓) to the correct statement or (✗) to the incorrect statement.

a. 1 km = 100 m [ ]

b. 3 dm = 30 cm [ ]

c. 2 days , 10 hours = 12 hours [ ]

d. 505 cm = 5 m , 5 cm [ ]

e. 4 weeks = 28 days [ ]

f. 60 seconds = 1 hour [ ]

**2.** Choose the correct answer.

a. 5 kg = 5,000 _____

A. hg B. day C. g D. dg

b. 9 m – 80 cm = _____ cm

A. 1 B. 10 C. 100 D. 820

c. _____ L = 17,000 mL

A. 17 B. 170 C. 1,700 D. 170,000

d. A line plot has a scale of 4. The first number on the scale is 8. There are 6 marks on the line plot. What is the last number on the line ?

A. 16 B. 20 C. 24 D. 28

e. The elapsed time from 3 : 50 A.M. to 7 : 00 A.M. is _____

A. 3 hr , 50 min B. 3 hr , 10 min

C. 4 hr , 10 min D. 4 hr , 50 min

f. 17 kg ☐ 7,000 g

A. > B. = C. < D. otherwise

**3.** Complete each of the following.

a. 8 kg , 37 g = _____ g

b. 6 : 34 – 1 : 25 = _____

c. 1 week , 3 days = _____ hours

d. 8 : 25 + 35 minutes = _____

e. 897 mm = _____ cm , _____ mm

f. The key of a line plot indicates that each X = 2 children. One of the data points on the line has 5 X's, then it represents _____ children.

**4.** **Match the cards which have the same amount.**

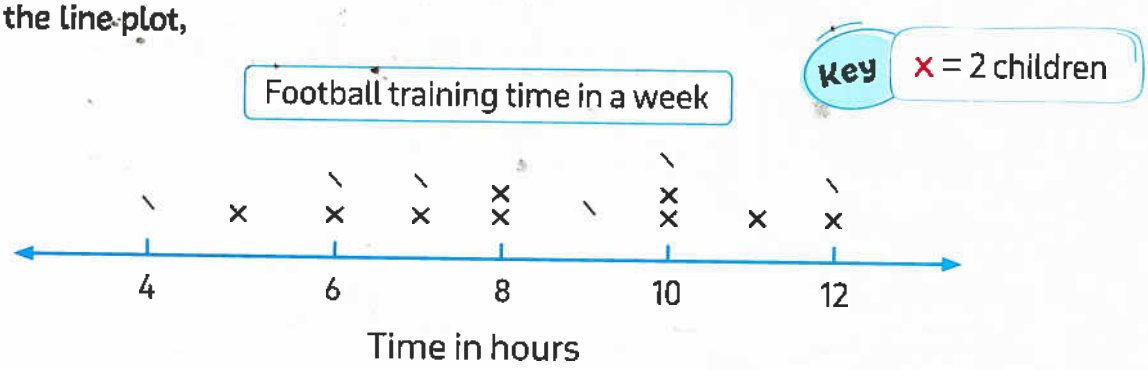
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| a. | 4 kg | b. | 4 km | c. | 4 dm | d. | 4 cm |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. | 4,000 m | 2. | 400 mm | 3. | 40 mm | 4. | 4,000 g |

**5.** Sarah purchased 3 kg , 400 g of sugar and 5 kg, 217 g of rice. What is the total mass which Sarah carried ?

**6.** 10 books of height 8 cm , 5 mm each are stacked over one another. What is the total height so obtained ?

**7.** **Look at the line plot,**




a. What is the scale for this number line ?

b. What is the number of children trained 7 hours in a week ?

**8.** A giraffe can be 5 meters, 50 centimeters tall.
An ostrich can be 2 meters, 40 centimeters tall.
How much taller is the giraffe than the ostrich in centimeters ?




**9.** A train leaves for Alexandria at 2 : 30 P.M. It takes 1 hour, 25 minutes to reach Banha. At what time will it reach at Banha.

**10.** A fizzy can of mass 300 g , Jana bought 6 cans.
What is the total mass of cans in kilograms and grams ?

UNIT 4

# Area and Perimeter

» **Concept 1 :** Explore Area and Perimeter

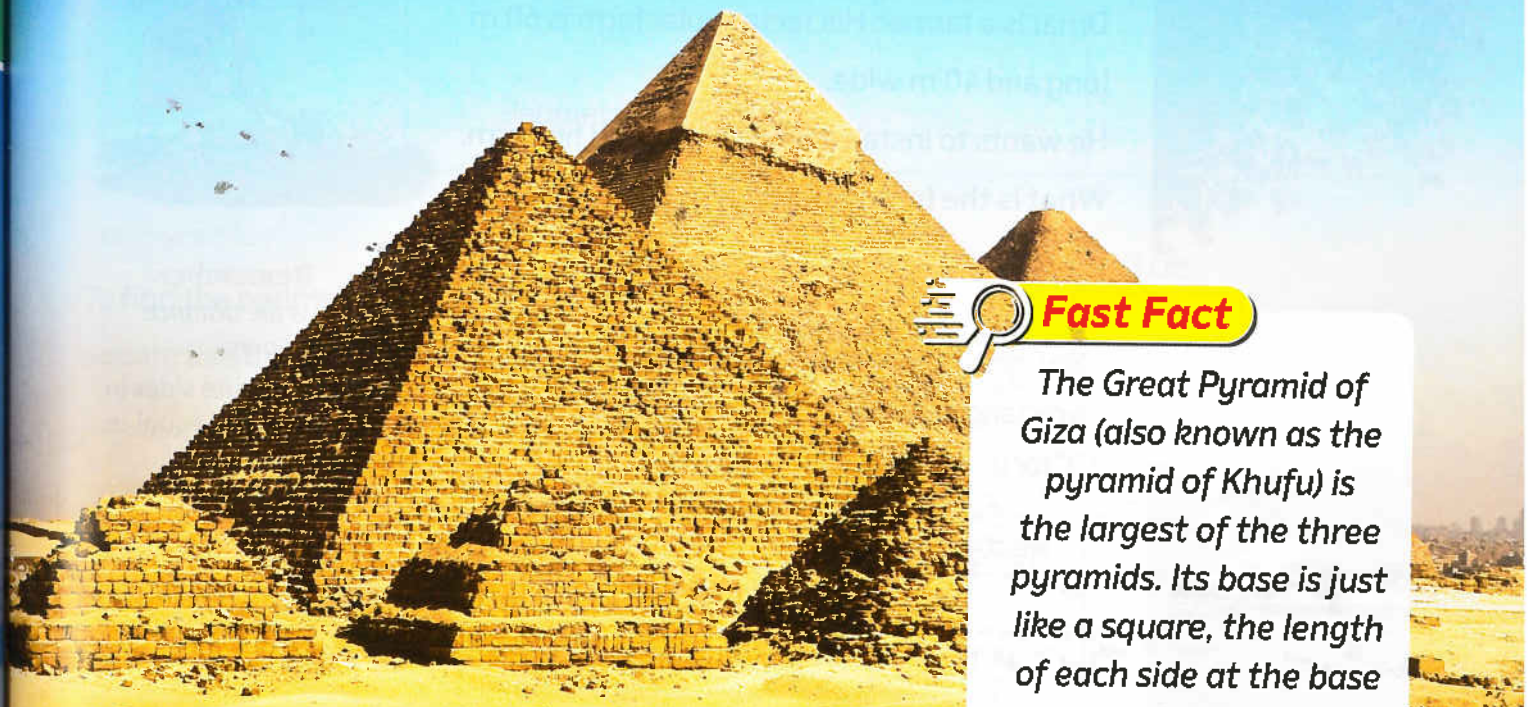


**Fast Fact**

*Egypt is located mostly in the northeast corner of the African continent. It has a total area close to* ***1 million square kilometer*** *El-Wadi El-Gidid, also known as New Valley governorate, is the largest among the 27 existing governorates with an area close to* ***440,000 square kilometers.***

Concept 1

# Explore Area and Perimeter



**Fast Fact**

*The Great Pyramid of Giza (also known as the pyramid of Khufu) is the largest of the three pyramids. Its base is just like a square, the length of each side at the base averaging 230 meters.*

***What is its perimeter ?!***

| Lesson No. | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
| Lesson 1 | Marching Ants (Use Formula to Find Perimeter) | Formula - Length - Perimeter - Quadrilateral - Scale - Sum - Width | • Students will define perimeter.<br>• Students will use formulas to calculate the perimeter of rectangles.<br>• Students will explain how to calculate perimeter. |
| Lesson 2 | Fill the space (Use Formula to Find Area) | Area - Length - Two-Dimensional - Width | • Students will difine area.<br>• Students will use formulas to calculate the area of rectangles.<br>• Students will explain how to calculate area. |
| Lesson 3 | Something Is Missing ! | Area - Dimensions - Formula - Perimeter - Unknown | • Students will use formulas to calculate unknowns when given some dimensions of rectangles. |
| Lesson 4 | Odd Shapes | Area - Complex - Perimeter | • Students will calculate the area and perimeter of complex shapes.<br>• Students will explain their strategies for finding the area and perimeter of complex shapes. |
| Lesson 5 | Growing Dimensions | Array - Multiplicative Comparison - Square Units | • Students use area and perimeter formulas to solve multiplicative comparison problems. |

Lesson 1

# Marching Ants
## "Use Formula to Find Perimeter"



## Learn 1 Using formula to find the perimeter of a rectangle

### Problem

Omar is a farmer. His rectangular farm is 60 m long and 40 m wide.

He wants to install a fence all around his farm.

**What is the length of the fence?**



**Remember**

- *Perimeter is the distance around the figure*
- Each two opposite sides in the rectangle are equal in length.

You can use a formula to find the perimeter of a rectangle. Where "P" stands for perimeter, "l" for length and "w" for width.

| Rectangle | Perimeter | Formula |
|---|---|---|
| l<br>w □ w<br>l | Perimeter = length + width + length + width<br>**or**<br>Perimeter = 2 × length + 2 × width<br>**or**<br>Perimeter = 2 × (length + width) | P = l + w + l + w<br>**or**<br>P = (2 × l) + (2 × w)<br>**or**<br>P = 2 × (l + w) |

So, the length of the fence = 60 + 40 + 60 + 40 (Think : P = l + w + l + w)

= 100 + 100 = 200 m

**Or** the length of the fence = (2 × 60) + (2 × 40) (Think : P = (2 × l) + (2 × w))

= 120 + 80 = 200 m

**Or** the length of the fence = 2 × (60 + 40) (Think : P = (2 × (l + w))

= 2 × 100 = 200 m

**Notes for parents :**

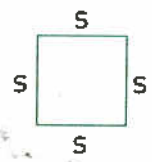
- Make sure your child understand that a formula is a rule that tells how to solve a problem.

## Learn 2 Using formula to find the perimeter of a square

- **All squares are rectangles. Square has 4 equal sides.**

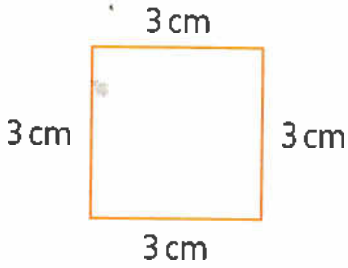
You can use a formula to find the perimeter of a square.

Where "P" stands for perimeter and "s" stands for side length.

| Square | Perimeter | Formula |
|---|---|---|
|   | Perimeter = side + side + side + side<br>**or**<br>Perimeter = 4 × side | P = s + s + s + s<br>**or**<br>P = 4 × s |

For Example :

To find the perimeter of the opposite square use the formula




$P = 4 \times s$
$= 4 \times 3 = 12$ cm

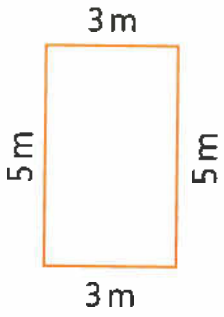
**or**

$P = s + s + s + s$
$= 3 + 3 + 3 + 3 = 12$ cm

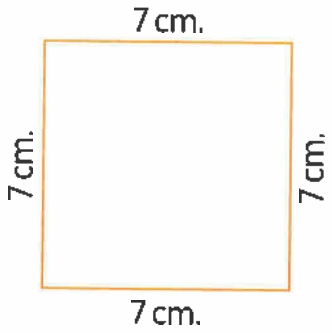
## Example 1

**Calculate the perimeters of the following shapes. Use different formulas to solve each problem.**

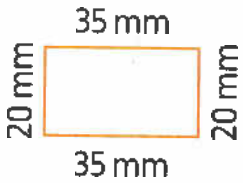
a.




b.




c.




### Solution

a. • First formula : $P = [2 \times l] + [2 \times w] = [2 \times 5] + [2 \times 3] = 10 + 6 = 16$ m
   • Second formula : $P = 2 \times [l + w] = 2 \times [5 + 3] = 2 \times 8 = 16$ m

b. • First formula : $P = s + s + s + s = 7 + 7 + 7 + 7 = 28$ cm
   • Second formula : $P = 4 \times s = 4 \times 7 = 28$ cm

- Remind your child to take careful note of the measurement unit used in each problem.
- Ask your child to find the perimeter of a window in his/her room using a formula.

c. • First formula : $P = l + w + l + w = 35 + 20 + 35 + 20$

$= 55 + 55 = 110$ mm

• Second formula : $P = 2 \times (l + w) = 2 \times (20 + 35) = 2 \times 55 = 2 \times (50 + 5)$

$= 100 + 10 = 110$ mm

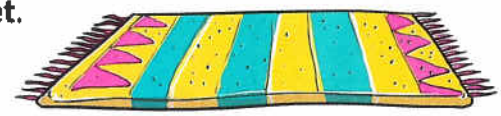
**Remember**

*You can use distributive property to multiply*

## Example 2

**Ahmed wants to make a rectangular carpet of perimeter 12 m.**

**Draw different rectangles that could represent his carpet.**



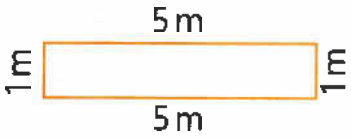
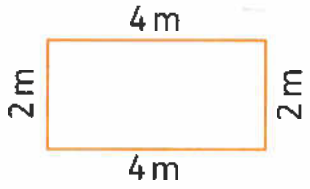
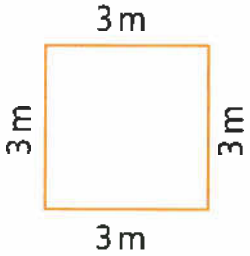
### Solution

To find different rectangles of perimeter 12 m, do as follow :

1. Find half of perimeter (half of perimeter = l + w)

$l + w = 12 \div 2 = 6$ m

2. Find two numbers their sum is 6 , these two numbers are length and width of the required rectangle

| 1 and 5 | 2 and 4 | 3 and 3 |
|---|---|---|
|   |   |   |
| P = 12 m | P = 12 m | P = 12 m |

## Check your understanding

**Which of the figures below have the same perimeter ?**

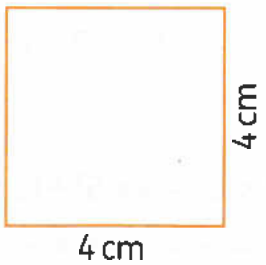
**a.**



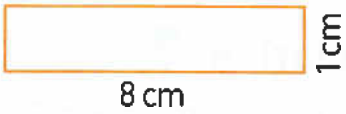

**b.**




**c.**




**d.**




**Notes for parents :**

• Review the distributive property using numbers rather than measurements.

Exercise 18

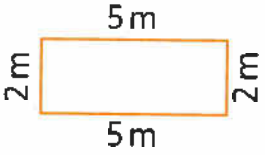
on lesson 1

# Marching Ants "Use Formula to Find Perimeter"

REMEMBER UNDERSTAND APPLY PROBLEM SOLVING From the school book

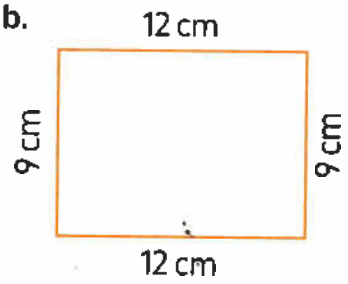
**1.** Use the formula P = l + w + l + w to calculate the perimeter of the following rectangles.

a.



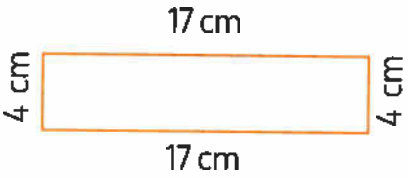

P = _____

b.




P = _____

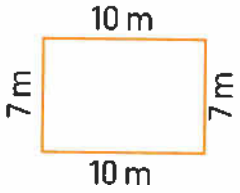
c.




P = _____

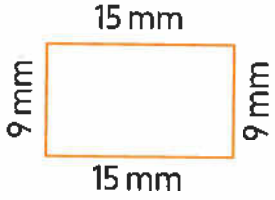
**2.** Use the formula P = (2 × l) + (2 × w) to calculate the perimeter of each of the following rectangles.

a.




P = _____

b.




P = _____

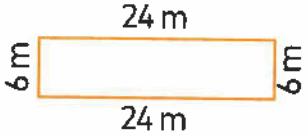
c.




P = _____

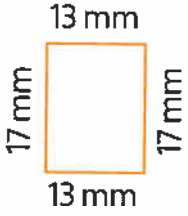
**3.** Use the formula P = 2 × (l + w) to calculate the perimeter of each of the following rectangles.

a.



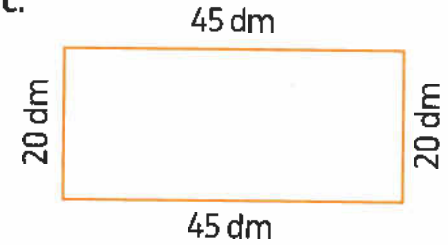

P = _____

b.




P = _____

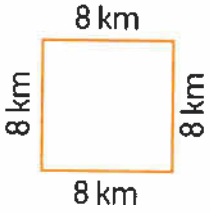
c.




P = _____

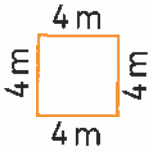
**4.** Use the formula P = 4 × s to calculate the perimeter of each of the following squares.

a.



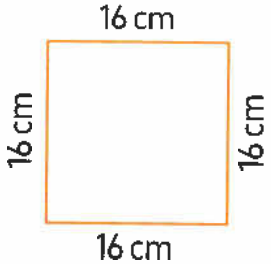

P = _____

b.




P = _____

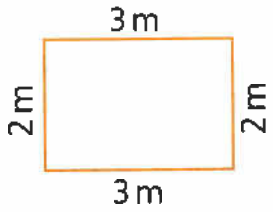
c.




P = _____

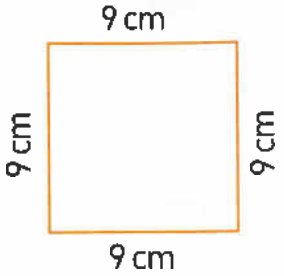
**5.** Calculate the perimeter of the shapes that follow. Use two different formulas to solve each problem. Show your work.

**a.**



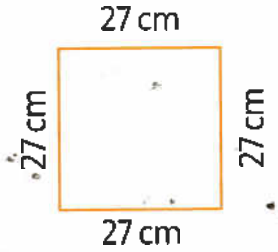

- First formula : _____
- Second formula : _____

**b.**



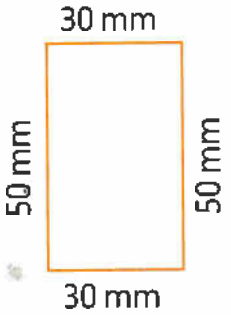

- First formula : _____
- Second formula : _____

**c.**




- First formula : _____
- Second formula : _____

**d.**



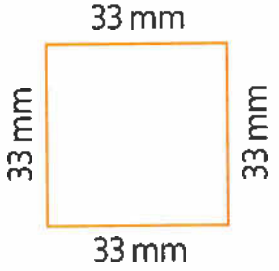

- First formula : _____
- Second formula : _____

**e.**




- First formula : _____
- Second formula : _____

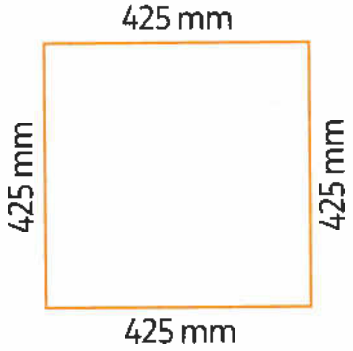
**f.**




- First formula : _____
- Second formula : _____

**6.** Find the perimeter. Show your work.

**a.**




_____

**b.**




_____

**7.** **Fill in the blanks.**

a. A rectangle of 16 m length and 14 m width, its perimeter is _____

b. A rectangle is 26 m long and 8 m width, its perimeter is _____

c. The perimeter of a rectangle of 13 mm length and 5 mm width is _____

d. A square of side length 8 cm, its perimeter is _____

e. The perimeter of a square of side length 15 m is _____

**8.** Rectangular gymnasium is 7 meters long and 4 meters wide .Find its perimeter. [Port Said 22]

**9.** 📖 Omar is building a rectangular fence around his garden. The length is 8 meters and the width is 6 meters. How many meters of fencing will he need to build ?

**10.** 📖 Sarah is putting a border around the edge of a square cake. One side of the cake is 30 centimeters long. How long will the border of Sarah's cake be ?

**11.** 📖 Sherif is building a square picture frame. Each side will be 36 millimeters long. What will the perimeter of the frame be ?

**12.** 📖 A soccer team is roping off part of a field to play soccer. To have enough room for a large crowd, they need a space that is 105 meters long by 68 meters wide. How much rope will they need for this part of the field ?

**13.** 📖 A carpenter ant walked a perimeter of 100 centimeters. Draw two different rectangles that could represent its walk.

# Multiple Choice Questions

Choose the correct answer.

**1.** A rectangle its length is l and its width is w
What is it perimeter ?

[Alexandria - Montaza 22]

A. $l + w$
B. $l \times w$
C. $2 \times [l + w]$
D. $[2 \times l] + w$

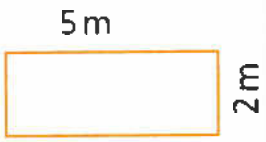
**2.** Which two choices show the formula for the perimeter of a rectangle ?
[P = perimeter , l = length , w = width]

A. $P = 2 \times [l + w]$
B. $P = 4 \times l$
C. $P = l + w + l + w$
D. $P = [2 \times l] \times [2 \times w]$

**3.** Which choice shows the formula for the perimeter of a square ?
[P = perimeter , s = side length]

A. $P = 4 + s$
B. $P = 4 \times s$
C. $P = s \times s$
D. $P = s + s$

**4.** The perimeter of the opposite rectangle equals _____

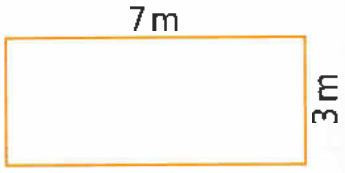



A. 10 m
B. 20 m
C. 14 m
D. 14 cm

**5.** The perimeter of a rectangle with two dimensions 10 cm and 5 cm is _____

A. 15 cm
B. 30 cm
C. 50 cm
D. 45 cm

**6.** Which of the following has the same perimeter of this rectangle ?



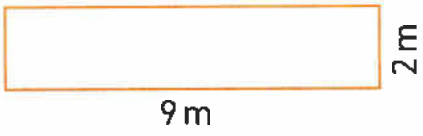

A.



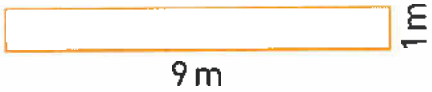

B.




C.




D.




**7.** Amal wants to find the perimeter of this rectangle.
How can she calculate its perimeter ?




A. She can add $12 + 4 + 12 + 4$ to find the perimeter is 32 meters.
B. She can add $12 + 4$ to find the perimeter is 16 meters.
C. She can multiply $12 \times 4 \times 12 \times 4$ to find the perimeter is 2,304 meters.
D. She can multiply $12 \times 4$ to find the perimeter is 48 meters.

Lesson 2

# Fill the Space
## "Use Formula to Find Area"

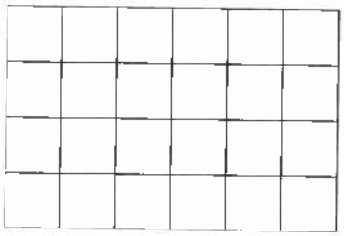


## Learn 1 Using formula to find the area of a rectangle

Sameh tiled the rectangular floor in his front hall. He used square tiles that measure 1 meter on each side.

**How many tiles did he use ?**

Hall Floor Plan



### One Way

You can count square units to find the area.

| | | | | | |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 |

Record your answer in square units.
A = 24 square meters.

**Remember**

*Area is the number of square units needed to cover the surface of a figure.*

### Another Way

You can also use a formula.

The formula for the area of a rectangle is

Area = length × width **Or** A = l × w

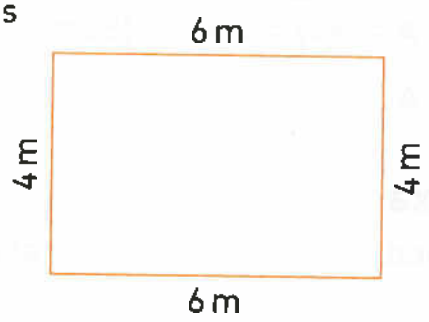
Use the formula to find the area.

A = l × w

A = 6 × 4

A = 24 square meters

**So, Sameh used 24 tiles.**




*Math tip*

*You can write square meters as* $m^2$

*, and write square centimeters as* $cm^2$

**Notes for parents :**

- Ask your child to find area of a carpet in his/her room using a formula.

## Learn 2 Using formula to find the area of a square

The formula for the area of a square is

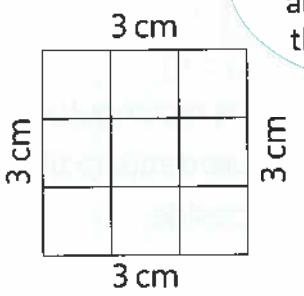
Area = side length × itself **Or** $A = s \times s$

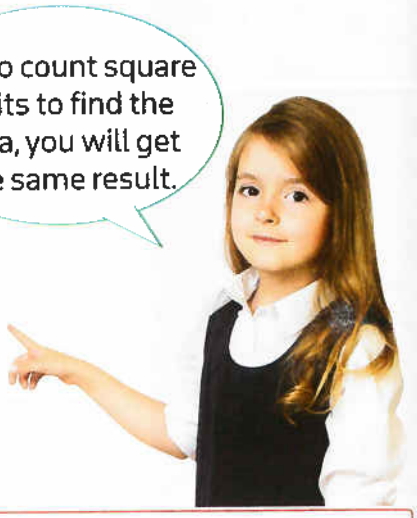
For Example :

The area of the opposite square

$A = s \times s = 3 \times 3$

$= 9$ square centimeters $[cm^2]$

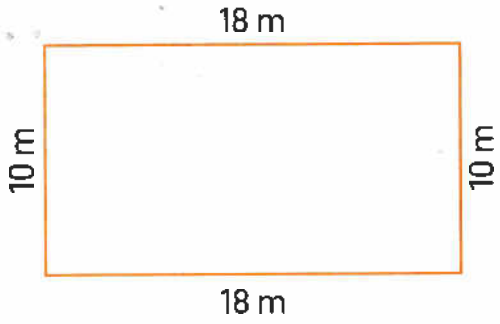


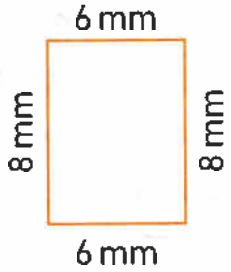

## Example 1

**Find the area of each of the following.**

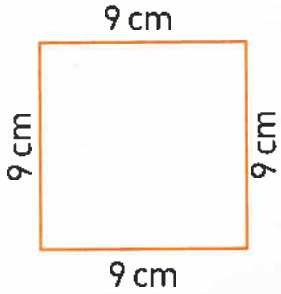
**a.**




**b.**




**c.**




### Solution

**a.** $A = l \times w = 18 \times 10 = 180\ m^2$

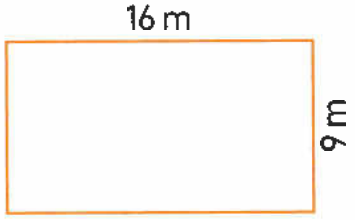
**b.** $A = l \times w = 8 \times 6 = 48\ mm^2$

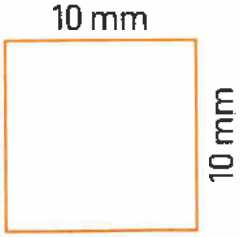
**c.** $A = s \times s = 9 \times 9 = 81\ cm^2$

## Example 2

**Find the area and perimeter of each figure.**

**a.**




**Remember**

- *Perimeter : Measurement of the distance around the shape.*
- *Area : Measurement of the space inside the shape.*

**Notes for parents :**

- Ask your child to use a formula to calculate the area of the door of his/her room.

**Solution**

a. $A = l \times w = 9 \times 16 = 9 \times (10 + 6) = 90 + 54 = 144\ m^2$

$P = 2 \times (l + w) = 2 \times (9 + 16) = 2 \times 25$

$= 2 \times (20 + 5) = 40 + 10 = 50\ m$

b. $A = s \times s = 10 \times 10 = 100\ mm^2$

$P = 4 \times s = 4 \times 10 = 40\ mm$

## Example 3

A small fish farm in the shape of a rectangle. Its dimensions are 10 meters and 8 meters.
What is the area of the fish farm ?

**Solution**

$A = l \times w = 10 \times 8 = 80\ m^2$

## Example 4

The area of a piece of paper in the shape of a rectangle is 12 square meters.
What is the perimeter of this piece ? Draw your answer and write the dimensions.

**Solution**

You need to find two numbers their product is 12, these two numbers are the rectangle dimensions

1 m and 12 m



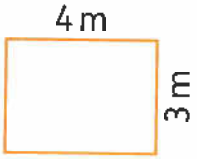

$P = l + w + l + w$
$= 1 + 12 + 1 + 12$
$= 13 + 13 = 26\ m$

2 m and 6 m




$P = (2 \times l) + (2 \times w)$
$= (2 \times 6) + (2 \times 2)$
$= 12 + 4 = 16\ m$

3 m and 4 m

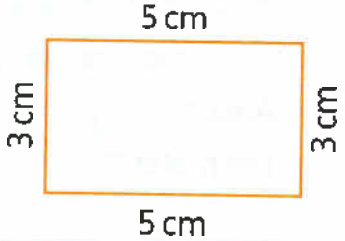


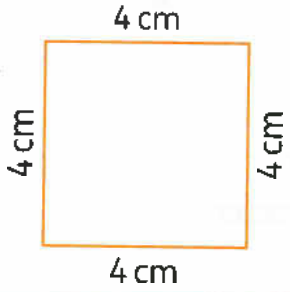

$P = 2 \times (l + w)$
$= 2 \times (4 + 3)$
$= 2 \times 7 = 14\ m$

You can use different formulas to calculate the perimeter of a rectangle.

**Check your understanding**

**Circle the shape that has greater area.**




- Challenge your child to draw many rectangles with area 30 $cm^2$.

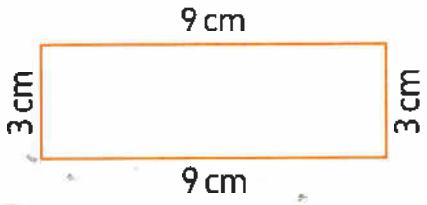
Exercise
19
on lesson 2

# Fill the Space
# "Use Formula to Find Area"

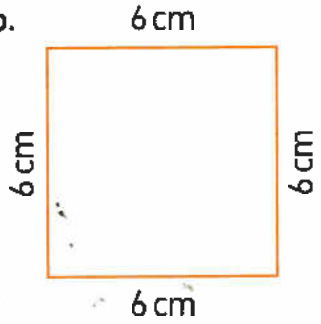
REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Write the formula of the area of each rectangle or square, then find its area.

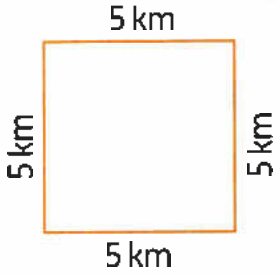
a.



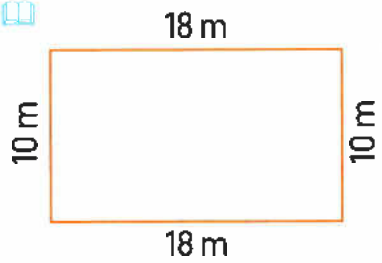

b.



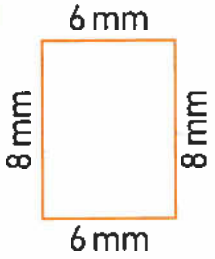

c.




d.




e.




f.




**2.** Find the area and perimeter of the rectangles and squares.

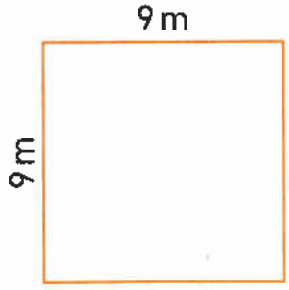
a.




Area = _____

Perimeter = _____

b.




Area = _____

Perimeter =

c.




Area = _____

Perimeter = _____

**3.** **Complete each of the following.**

a. The area of a rectangle its dimensions are 5 cm and 3 cm is _____

b. A rectangle its width is 4 cm and its length is 6 cm, then its area is _____ [Sharkia 22]

c. The length of a rectangle is 10 mm and the width is 8 mm , then the area of this rectangle equals _____

d. A square whose side length is 4 meters, then its area is _____ [El-Menia - Dir Mawas 22]

e. A side length of a square is 10 cm, its area is _____

**4.** A square picture of side length 8 cm. Hussein wants to cut a piece of glass to cover this picture, what is the area of the glass piece? [El-Kalyoubia 22]

**5.** A glass company is cutting a piece of glass to cover the top of a banquet table. The table measures 8 meters by 6 meters. What is the area of the glass needed for the table ?

**6.** Andy is putting carpet in a room that measures 4 m by 5 m. How many square meters of carpet does he need ?

**7.** A small rectangular ant farm measures 20 centimeters by 8 centimeters. What is the area of the ant farm ?

**8.** A square - shaped room has a side length 4 metres. what is the area of the ground of the room in square metres? [Souhag 22]

**9.** For a science project, two students are creating an ant farm enclosure. Their enclosure will be 5 meters long and 2 meters wide. Sketch the enclosure and label the dimensions. Then, find the perimeter and area.

**10.** You have 36 square carpet tiles to arrange on the floor in the shape of a rectangle. Draw two possible arrangements and label the length and width. What is the perimeter of each arrangement ? What is the area ?

- **First**

A =

P =

- **Second**

A =

P =

**11.** The area of a rectangular bakery is 30 square meters.
What could the perimeter be ? Sketch your answer and label the dimensions.

## Challenge

**12.** Ganat wants to create a long piece of artwork and needs two sheets of paper to do it. Each piece of paper is 6 meters long and 2 meters wide and will be connected so the two short edges touch. When she finishes the art, she has to decide whether to frame it or to hang it and cover it with glass. Ganat needs to know the measurements of the frame and the glass to make her decision.

- What is the measurement of the frame ? Should you calculate area or perimeter to find that measurement ?
- What is the measurement of the glass ? Should you calculate area or perimeter to find that measurement ?

# Multiple Choice Questions

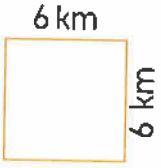
Choose the correct answer.

**1.** The length of a rectangle is b. The width is c. What is the calculation for the area ?

A. $b + c$ B. $b \times c$

C. $[2 \times b] + [2 \times c]$ D. $[2 \times b] \times [2 \times c]$

**2.** The area of the opposite figure equal _____




A. 24 km B. 36 km

C. $36\ km^2$ D. $24\ km^2$

**3.** A rectangle its length is 8 cm and its width is 4 cm,then its area= _____ $cm^2$.

[Giza - 6th October 22]

A. 32 B. 12

C. 24 D. 64

**4.** The area of a piece of paper in the shape of a square with side length 8 cm equals _____ $cm^2$.

A. 64 B. 16

C. 32 D. 80

**5.** Area of rectangle of length 8 cm and width 5 cm = _____ $cm^2$. [El-Dakahlia 22]

A. 3 B. 13 C. 26 D. 40

**6.** A rectangle of length equals 20 cm and width equals 10 cm, then its area equals _____ square cm.

[Giza - El-Haram 22]

A. $2 \times 20 + 2 \times 10$ B. $20 + 10$ C. 60 D. 200

**7.** Which two choice has the same perimeter but different in area ?

A.



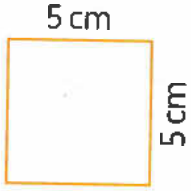

B.




C.




D.




**8.** Which two choice has the same area but different in perimeter ?

A.




B.




C.




D.



Lesson 3

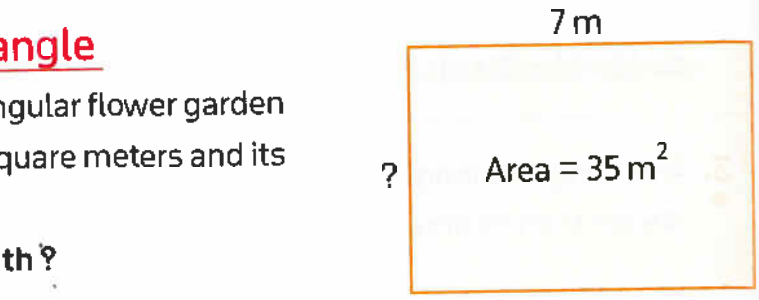
# Something Is Missing !

## Learn 1 Use the area formulas to calculate the unknown dimension

### First : The rectangle

Amal made a rectangular flower garden with an area of 35 square meters and its length is 7 meters.

**How long is its width ?**




Use the formula to find the unknown width (w).

$A = l \times w$

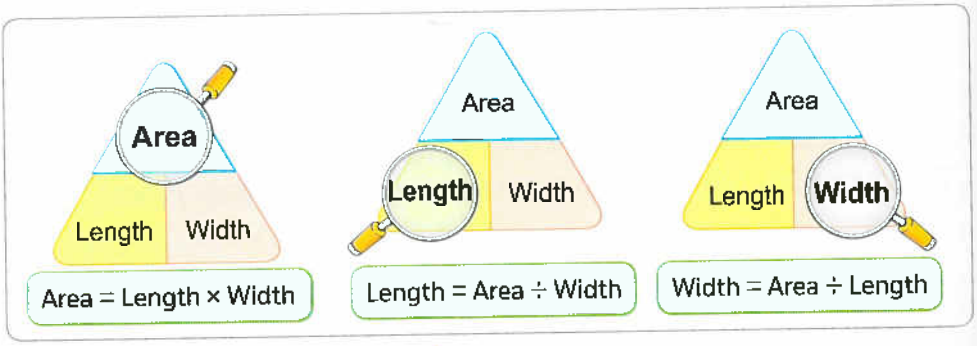
$w = A \div l$

$w = 35 \div 7 = 5$ m

**So,** the width of the garden is 5 meters.

**Remember**

*Area of a rectangle = length × width*




### Second : The square

A square is of area 36 cm².

**What is its side length ?**

**Remember**

*Area of a square = side length × side length*

Use the formula to find the unknown side length.




$A = s \times s$

$36 = s \times s$

$s = 6$ cm (because $6 \times 6 = 36$)

**So,** the side length is 6 cm.

**Hint**

Look for a number if multiplied by itself gives the area.

**Notes for parents :**

- In this lesson, your child will apply area and perimeter formulas to solve for an unknown dimension in a rectangle or a square.

# Learn 2 Use the perimeter formulas to calculate the unknown dimension

## First : The rectangle

A rectangular piece of paper has a perimeter 28 cm and width 6 cm.

**How long is its length ?**



**Remember**

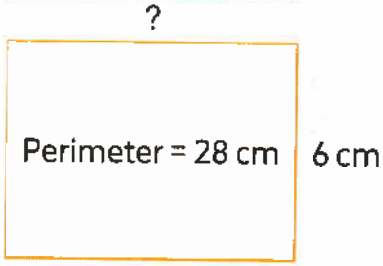
- *Perimeter of a rectangle = (2 × length) + (2 × width)*
- *Half of perimeter = length + width = perimeter ÷ 2*

- Use the formula to find the unknown length (l).

$$P = 2 \times (l + w)$$

- Half of perimeter = 28 ÷ 2 = 14
- Length = half of perimeter – width
- Length = 14 – 6 = 8 cm

**So,** the length is 8 cm.




**Another Way Using Bar Model**

$P = (2 \times l) + (2 \times w)$

| P | |
|---|---|
| 2 × l | 2 × w |

2 × w = 2 × 6 = 12

| 28 | |
|---|---|
| 2 × l | 12 |

2 × l = 28 – 12 2 × l = 16

l = 16 ÷ 2 = 8 cm

## Second : The square

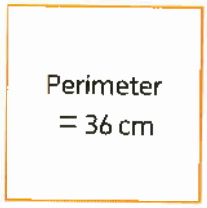
A square is of perimeter 36 cm.

**What is its side length ?**



**Remember**

*Perimeter of a square = side length × 4*

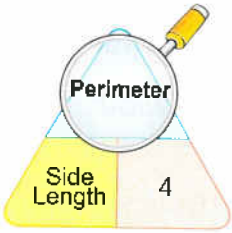



Use the formula to find the unknown side length (s).

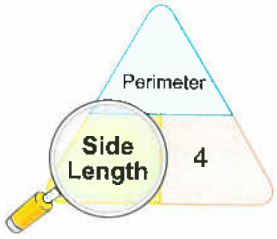
$$P = s \times 4$$

36 = s × 4 s = 36 ÷ 4 = 9 cm

**So,** the side length is 9 cm.




Perimeter = Side length × 4




Side length = Perimeter ÷ 4



- Ask your child questions as : Which number if multiplied by itself you get 16 , 25 , 36 , 49 , ... ?

## Conclusion

### In a rectangle

l = length , w = width , P = perimeter , A = area

| $A = l \times w$ | $P = 2 \times (l + w)$ |
|---|---|
| • $l = A \div w$ | • $l = (P \div 2) - w$ |
| • $w = A \div l$ | • $w = (P \div 2) - l$ |

## Conclusion

### In a square

s = side length , P = perimeter , A = area

| $A = s \times s$ | $P = s \times 4$ |
|---|---|
| s is a number if multiplied by itself gives area. | $s = P \div 4$ |

## Example 1

**a.** The area of a rectangle is 28 $cm^2$. If its width equals 4 cm, find its length and its perimeter.

**b.** A square is of area 16 $m^2$. Find its side length and its perimeter.

### Solution

**a.** $A = 28\ cm^2$ $w = 4\ cm$ $l = ?$

- $l = A \div w = 28 \div 4 = 7\ cm$
- $P = 2 \times (l + w)$
  $= 2 \times (7 + 4) = 2 \times 11 = 22\ cm$

**b.** $A = 16\ m^2$ $s = ?$

- $s = 4\ m$ (because $4 \times 4 = 16$)
- $P = 4 \times s = 4 \times 4 = 16\ m$

## Example 2

**a.** The perimeter of a rectangle is 20 m. If its length equals 6 m, find its width and its area.

**b.** A square is of perimeter 32 cm. Find its side length and its area.

### Solution

**a.** $P = 20\ m$ $l = 6$ $w = ?$

$P \div 2 = 20 \div 2 = 10\ m$

- $w = (P \div 2) - l = 10 - 6 = 4\ m$
- $A = l \times w = 6 \times 4 = 24\ m^2$

**b.** $P = 32\ cm$ $s = ?$

- $s = P \div 4 = 32 \div 4 = 8\ cm$
- $A = s \times s = 8 \times 8 = 64\ cm^2$

## Check your understanding

**a.** If the area of a rectangle is 35 $cm^2$ and its length equals 7 cm, find its width.

**b.** A square is of area 25 $cm^2$, find its side length and its perimeter.

**c.** If the perimeter of a rectangle is 18 cm and its width equals 3 cm, find its length and its area.

**d.** A square is of perimeter 40m. Find its side length.

**Notes for parents :**

- Revise with your child time table 4. Practise him/her how he/she can divide by 4.

# Exercise 20

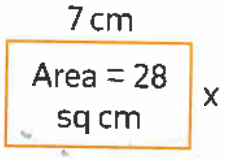
on lesson 3

## Something Is Missing !

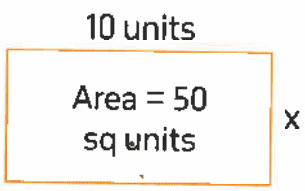
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**1.** Find the unknown side length based on the area given of each rectangle.

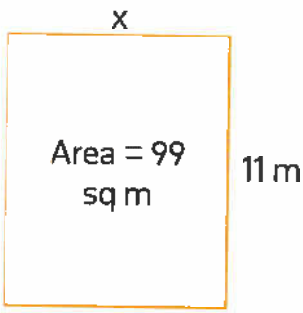
a.




b.

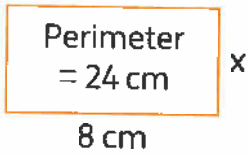



c.

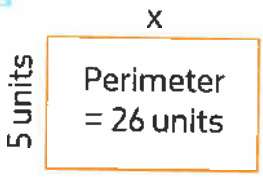



**2.** Find the unknown side length based on the perimeter given of each rectangle.

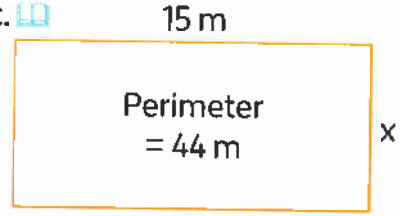
a.




b.

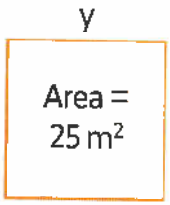



c.

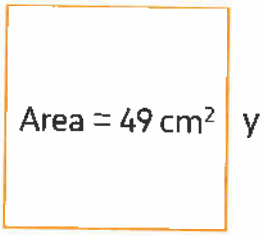



**3.** Find the unknown side length based on the area given of each square.

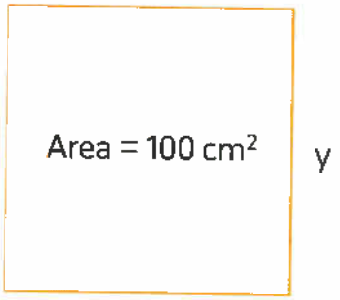
a.




b.

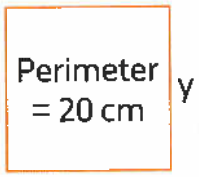



c.

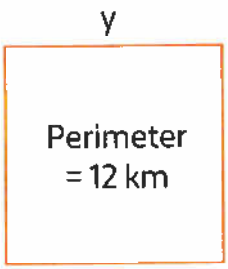


**4.** Find the unknown side length based on the perimeter given of each square.

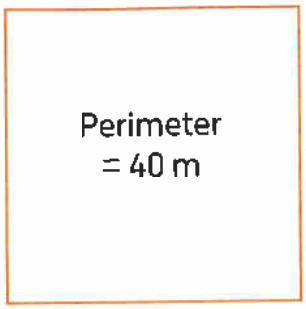
**a.**




**b.**




**c.**




**5.** Complete the following table of rectangles.

| Length | Width | Area | Perimeter |
|---|---|---|---|
| a. 5 cm | 10 cm | | |
| b. | 5 m | 10 $m^2$ | |
| c. 9 km | | 72 $km^2$ | |
| d. 6 dm | | | 22 dm |
| e. | 2 mm | | 18 mm |

**6.** Complete the following table of squares.

| Side length | Area | Perimeter |
|---|---|---|
| a. 9 m | | |
| b. | 64 $cm^2$ | |
| c. | | 36 mm |

**7.** Complete each of the following.

a. A square is of area 49 $km^2$ , then its side length is

b. The perimeter of a square is 36 cm, then the length of its side is cm

[Aswan - Kom Ombo 22]

c. A square has a perimeter 12 cm, then its area is

d. A square has an area of 16 square centimeters, then its perimeter is cm.

[Cairo - El-Kobba 22]

e. The area of a rectangle is 42 $km^2$, and its width is 6 km , then its length is

f. The area of a rectangle is 45 $m^2$ , and its length is 9 m , then its perimeter is

g. If the perimeter of a rectangle is 26 cm, and its width is 4 cm, then its length is

h. A rectangle has perimeter 32 m , and its length is 9 m, then its area is

**8.** A rectangular flowerbed in the city park has an area of 12 square meters. The width of the flowerbed is 3 meters. What is the length of the flowerbed ?

**9.** Ali sketch a rectangular painting with an area of 28 $cm^2$ , the width of his painting is 4 cm Find its perimeter.

**10.** 📖 Tahani is building a square picture frame for her father. The picture she has to frame has an area of 144 square centimeters. What is the width and the length of her frame ? Sketch the frame and show your work.

**11.** Emad is building a garden with 26 m of fencing.
What is the length and the area of it if its width is 6 m ?

**12.** Mai walked once around the squared playground. She covered a distance of 40 m.
What is the area of this playground ?

**13.** 📖 Soliman works on a farm. The fence for the goats fell down, and his uncle asked Soliman to get more wire to make a new fence. He was told that the width of the fence is 25 meters and that he needs to get 110 meters of wire to go around the entire space. What is the length of the missing side ? Sketch the fence and find the missing length.

**14.** A rectangle is 6 meters wide. The length is 2 meters more than its width. What is the area and perimeter of the rectangle ?

## Challenge

**15.** Mathew has two pictures, both with an area of 36 $cm^2$ One is a rectangle with length 9 cm, and the other is a square. Which has the greater perimeter ?

# Multiple Choice Questions

Choose the correct answer.

**1.** Length of a rectangle = _____

A. Area ÷ length
B. Area ÷ width
C. Length × width
D. Area × width

**2.** A rectangle with an area 30 $cm^2$. If its length is 6 cm, then its width equals _____

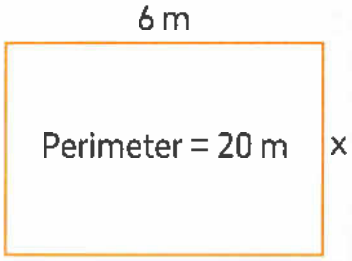
A. 6 cm
B. 5 m
C. 5 cm
D. 30 cm

**3.** A square with a perimeter 32 cm, then the side length of the square equals _____

A. 8 cm
B. 4 cm
C. 16 cm
D. 64 cm

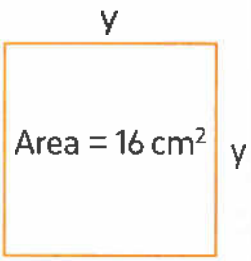
**4.** The value of x is _____

A. 10 m
B. 20 m
C. 6 m
D. 4 m




**5.** The value of y is _____

A. 4 cm
B. 6 cm
C. 10 cm
D. 8 cm




**6.** A rectangle with area 15 $cm^2$ and width 3 cm. What is its perimeter?

A. 8 cm
B. 15 cm
C. 16 cm
D. 16 $cm^2$

**7.** A square with area 1 $m^2$ What is its perimeter?

A. 1 m
B. 2 m
C. 3 m
D. 4 m

**8.** Nahed wants to put a ribbon border around a blanket she is making. The width of the blanket is 3 meters. The perimeter of the blanket is 14 meters. How long is the length of the blanket?

[Alexandria - Borg El-Arab 22]

A. 17 meters B. 11 meters C. 8 meters D. 4 meters

**9.** Nancy's rectangular room is 8 meters long and has a perimeter of 24 meters. What is the width of the room?

A. 16 meters
B. 3 meters
C. 8 meters
D. 4 meters

**10.** Elen wants to find the measure of the length of a rectangle with area 18 $cm^2$ and width 3 cm. How can she find the length?

A. She can add 18 + 3 + 18 + 3
B. She can multiply 18 × 3
C. She can divide 18 ÷ 3
D. She can add 18 + 3

Lesson 4

# Odd Shapes



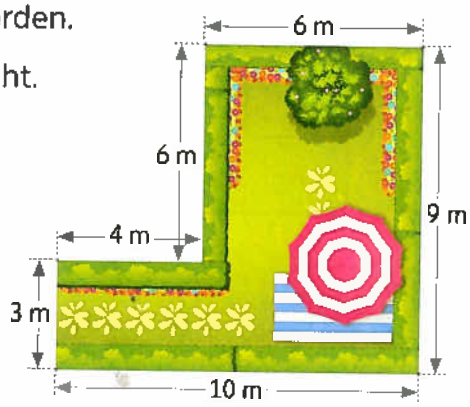
## Learn How to find perimeter and area of complex figures ?

Andy wants to put a fence around his garden.

The space he will use is shown at the right.

**How much fence should he buy ?**

**What is the area of his garden ?**




### Find the perimeter

Add the lengths of the sides.

Perimeter = 10 + 3 + 4 + 6 + 6 + 9 = 38 m

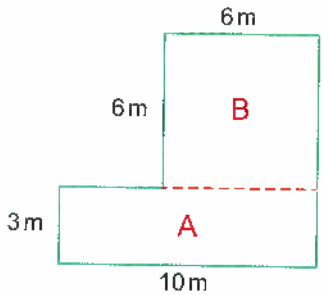
**He should buy 38 meters of fence.**

### Find the area

There are many ways to calculate the area.

**Step 1**

Separate the figure into a rectangle **A** and a square **B**.




**Step 2**

Calculate to find the area of each figure.

**Area of the rectangle A**

A = l × w

= 10 × 3

= 30 sq m

**Area of the square B**

A = s × s

= 6 × 6 = 36 sq m

**Step 3**

Add both areas to find the area of the whole figure.

30 + 36 = 66 sq m

**The area of the garden is 66 square meters.**

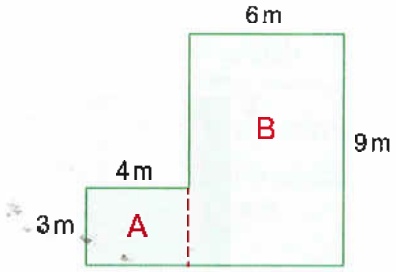
**Notes for parents :**

- In this lesson, your child will learn and apply strategies for calculating the area and perimeter of complex shapes. Your child will use a variety of strategies to break shapes down into squares and rectangles to calculate their measurements.

## Another Way to find area

### Step 1

Separate the figure into a rectangle **A** and a rectangle **B**.




### Step 2

Calculate to find the area of each figure.

**Area of the rectangle A**

Area = l × w

= 4 × 3 = 12 sq m

**Area of the rectangle B**

Area = l × w

= 9 × 6 = 54 sq m

### Step 3

Add both areas to find the area of the whole figure.

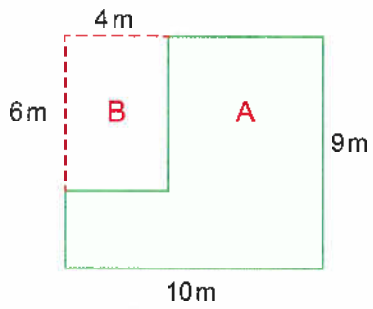
12 + 54 = 66 sq m

**The area of the garden is 66 square meters.**

## Another Way to find area

### Step 1

Complete the figure as a big rectangle **A** and a small rectangle **B**.




### Step 2

Calculate to find the area of each figure.

**Area of the rectangle A**

A = l × w

= 10 × 9 = 90 sq m

**Area of the rectangle B**

A = l × w

= 6 × 4 = 24 sq m

### Step 3

Subtract areas to find the area of the required figure.

90 − 24 = 66 sq m

**The area of the garden is 66 square meters.**

### Note

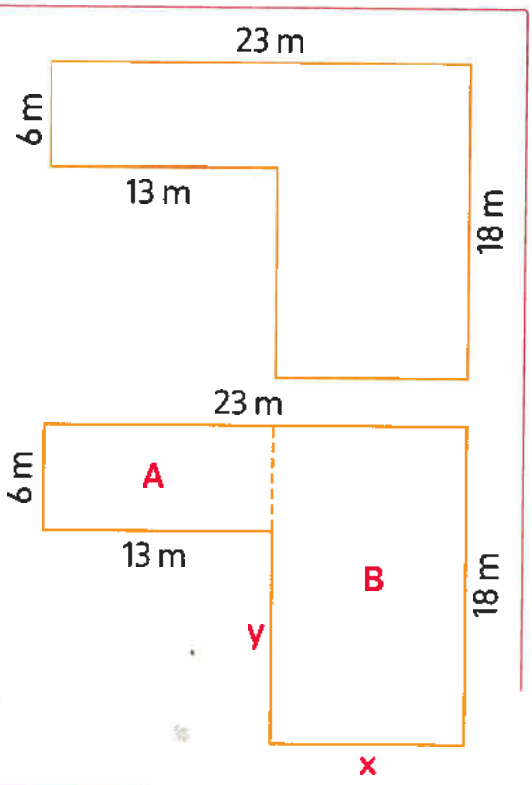
The area of a complex figure does not change when divided in different ways.

**Notes for parents :**

- Make sure what your child understand the area of a complex figure does not change when he/she calculate in different ways.

## Example 1

**Calculate the perimeter and area of the figure.**




### Solution

First you should find the length of the unknown sides x and y

$x = 23 - 13 = 10$ m  $y = 18 - 6 = 12$ m

The perimeter $= 23 + 18 + 10 + 12 + 13 + 6 = 82$ m

The area = Area of section A + Area of section B

$= (13 \times 6) + (18 \times 10)$

$= (10 + 3) \times 6 + 180$

$= (10 \times 6) + (3 \times 6) + 180 = 60 + 18 + 180 = 258\ m^2$

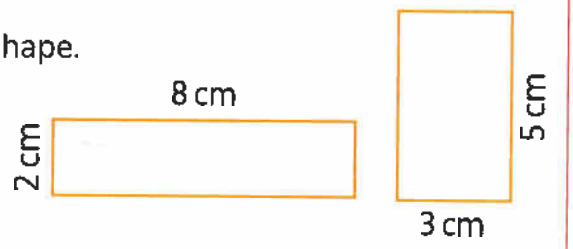



## Example 2

Combine these two simple shapes to form a complex shape.

Sketch your shape, labeling the sides.

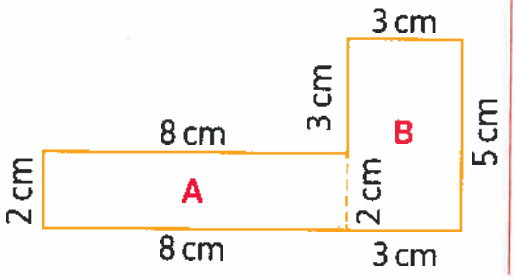
**Then calculate the perimeter and the area of the complex shape.**




### Solution

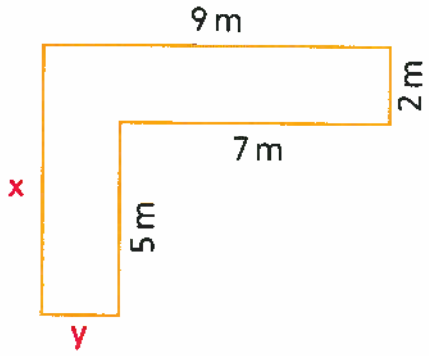
- The perimeter $= 8 + 3 + 3 + 5 + 3 + 8 + 2 = 32$ cm
- The area = Area of section A + Area of section B

$= (8 \times 2) + (5 \times 3) = 16 + 15 = 31\ cm^2$




### Check your understanding

**Find the perimeter and the area of each of the complex figure.**




- The perimeter of the complex shape may be equal different results according to how you form this complex shape, but the area of the complex shape do not change.

# Exercise 21

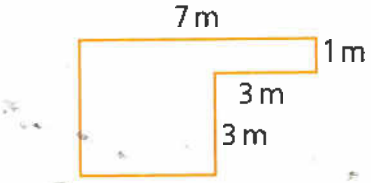
on lesson 4

## Odd Shapes

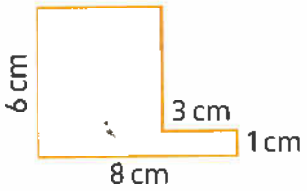
REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Calculate the area and the perimeter of the complex shapes. Show your work.

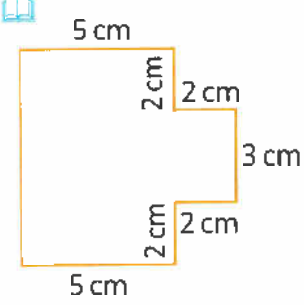
**a.**



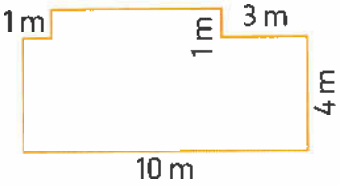

**b.**



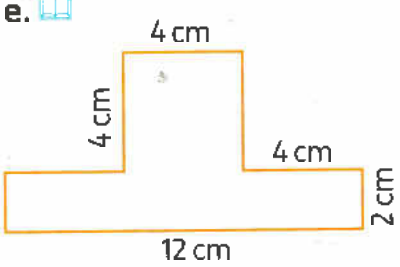

**c.**



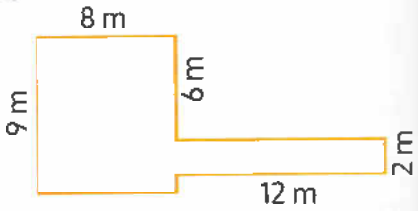

**d.**




**e.**

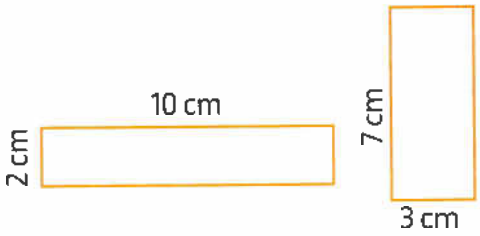



**f.**

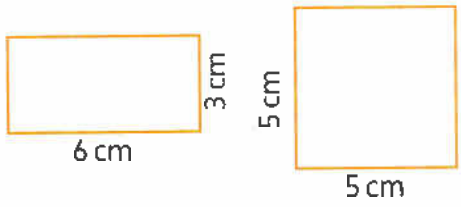



**2.** Combine these two simple shapes into a complex shape. Sketch your shape, labeling the sides. Then, calculate the area and perimeter for the complex shape.

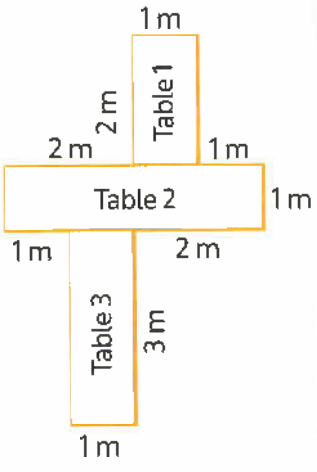
**a.**




**b.**




**3.** A company pushes together three tables for a team meeting. What is the area of the figure made by the tables ? Explain how you know

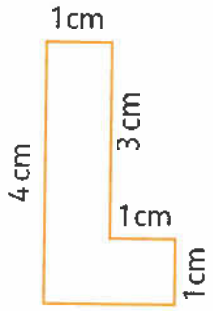


# Multiple Choice Questions

Choose the correct answer.

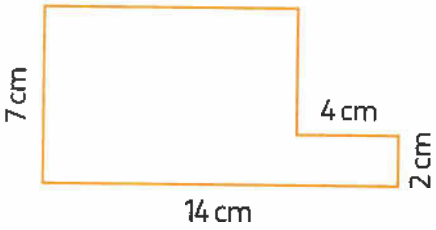
**1.** What is the perimeter of the figure ?

A. 10 cm
B. 12 cm
C. 13 cm
D. 15 cm



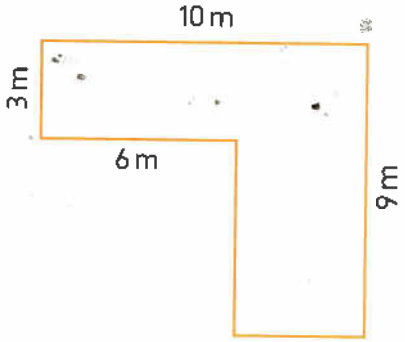

**2.** What is the area of the figure ?

A. 24 $cm^2$
B. 42 $cm^2$
C. 78 $cm^2$
D. 87 $cm^2$



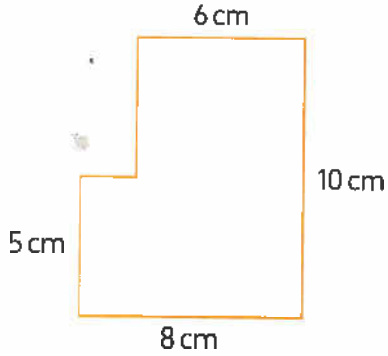

**3.** What is the area of the figure ?

A. 54 $m^2$
B. 32 $m^2$
C. 32 $cm^2$
D. 54 $cm^2$



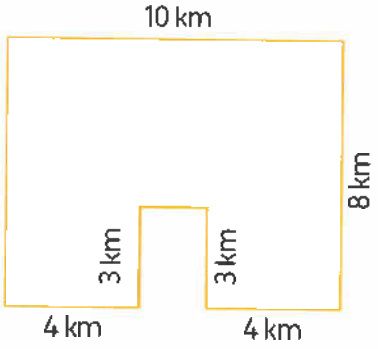

**4.** What is the perimeter of the figure ?

A. 70 m
B. 36 m
C. 36 cm
D. 70 cm



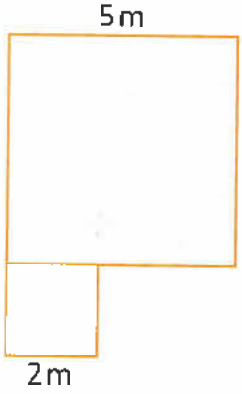

**5.** What is the area of the figure ?

A. 74 $m^2$
B. 42 km
C. 42 m
D. 74 $km^2$



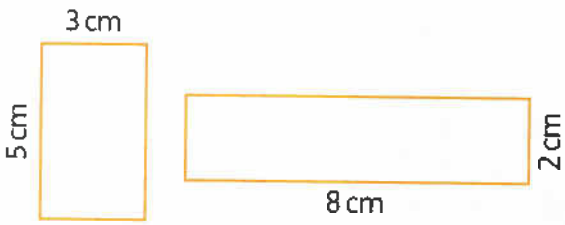

**6.** Two squares are joined to make a figure. What is the perimeter of the figure ?

A. 7 m
B. 10 m
C. 24 m
D. 35 m




**7.** If you combine the two rectangles to make a complex figure, what is the area of the resulted figure ?

A. 18 $cm^2$
B. 31 $cm^2$
C. 36 $cm^2$
D. 40 $cm^2$



Lesson 5

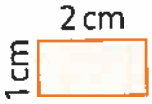
# Growing Dimensions

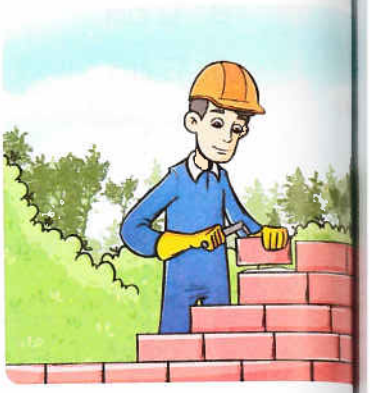
Just for Reading



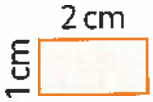
## Learn

**Look at the rectangle**



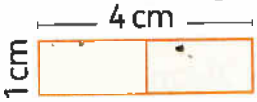



- **What will happen to the area of the rectangle if the length is doubled and if tripled ?**




Area = 2 × 1 = 2 cm

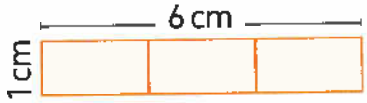
- When the length is doubled.




Area = 4 × 1 = 4 cm

The area doubles too.

- When the length is tripled.



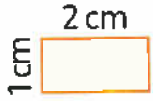

Area = 6 × 1 = 6 cm

The area triples too.

*Math tip*

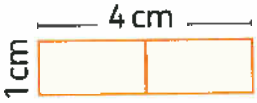
- *Double means (× 2)*
- *Triple means (× 3)*

- **What will happen to the perimeter of the rectangle if the length is doubled and if tripled ?**



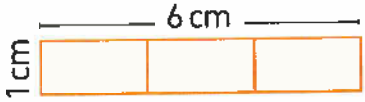

Perimeter = 2 × [2 + 1] = 2 × 3 = 6 cm

- When the length is doubled.




Perimeter = 2 × [4 + 1] = 2 × 5 = 10 cm

- When the length is tripled.




Perimeter = 2 × [6 + 1] = 2 × 7 = 14 cm

You can use connected rectangles to form a perimeter pattern

6 , 10 , 14

A rule is add 4.

**Notes for parents :**

- In this lesson, your child will use area and perimeter formulas to solve multiplicative comparison problems.

## Notes

- Double [Twice] means to multiply by 2
- Two times means to multiply by 2
- Triple means to multiply by 3
- Three times means to multiply by 3
- Four times means to multiply by 4
- Half means to divide by 2
- Third means to divide by 3

## Examples

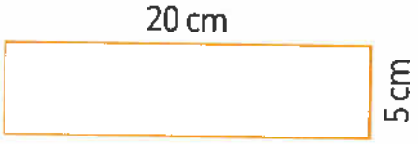
- Double the number 4 → $4 \times 2 = 8$
- Twice the number 5 → $5 \times 2 = 10$
- Triple the number 2 → $3 \times 2 = 6$
- Two times the number 10 → $2 \times 10 = 20$
- Three times the number 6 → $3 \times 6 = 18$
- Four times the number 9 → $4 \times 9 = 36$

## Example

A rectangle with width 5 cm and its length is 4 times the width. Draw the rectangle and write the measure of its sides then find the area and perimeter.

## Solution

- $w = 5$ cm  $l = 4 \times 5 = 20$ cm
- Area $= l \times w = 20 \times 5 = 100$ cm$^2$
- Perimeter $= 2 \times [l + w] = 2 \times [20 + 5] = 50$ cm




## Check your understanding

**1. Calculate the area and perimeter of a rectangle whose length is twice its width, it its width is 6 m.**

Area = _____

Perimeter = _____

**2. A length of a rectangle is 10 dm, find its area and perimeter if its width half its length.**

Area = _____

Perimeter = _____

**3. A rectangle with 4 cm width and the length is triple its width. Find the area and the perimeter.**

Area = _____

Perimeter = _____

- In a multiplicative comparison problems, one quantity will always be smaller or larger than the other quantity.

# Unit Four Assessment

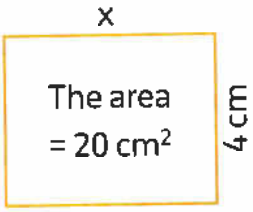



**1. Put (✓) to the correct statement or (✗) to the incorrect statement.**

a. The formula of the perimeter of the rectangle is $P = 2l + 2w$ [ ]

b. The area of a square of side length 5 cm equals 25 cm. [ ]

c. **In the opposite figure :**
The value of x is 5 cm.




[ ]

d. The perimeter of the opposite figure equals perimeter of A + perimeter of B.




[ ]

e. The perimeter of a rectangle with two dimensions 7 cm and 5 cm equals 35 $cm^2$. [ ]

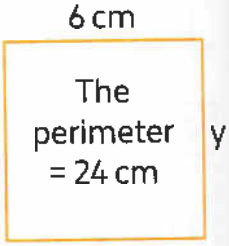
f. Width of the rectangle = its area ÷ its length [ ]

**2. Choose the correct answer.**

a. The area of the rectangle with 5 cm long and 3 cm wide equals ____

A. 16 $cm^2$ B. 15 cm C. 15 $cm^2$ D. 16 cm

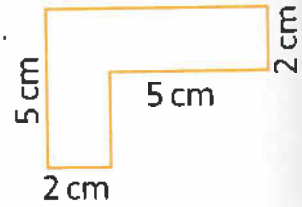
b. **In the opposite figure :**
The value of y is ____




A. 4 cm B. 5 cm

C. 6 cm D. 7 cm

c. The perimeter of the opposite complex figure equals ____ cm.




A. 14 B. 21

C. 19 D. 24

d. The perimeter of a rectangle with 15 cm long and 10 cm wide = ____ cm

A. 150 B. 50 C. 40 D. 35

e. Area of square = ____

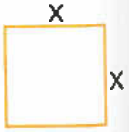
A. $2l + 2w$ B. $l + w$ C. $l \times w$ D. $s \times 4$

f. The perimeter of a square of side length 10 m is ____ m.

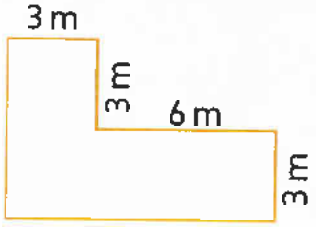
A. 30 B. 100 C. 20 D. 40

**3. Complete the following.**

a. If the area of the opposite figure equals 25 $m^2$, then the value of x is ____ m



b. The area of the opposite figure equals _____ $m^2$




c. The area of the rectangle with 3 cm wide and 9 cm long = _____ $cm^2$

d. The perimeter of the rectangle = _____ + _____

e. The area of a rectangle with 8 cm long and 2 cm wide equals the area of a square of side length _____ cm

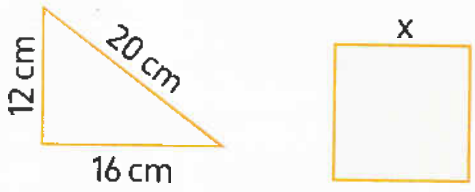
f. The side length of a square = its perimeter ÷ _____

**4. Match the cards that have the same results.**

| | | | |
|---|---|---|---|
| a. | The area of a square of side length 6 cm | 1. | 20 cm |
| b. | The perimeter of a rectangle with 6 cm long and 4 cm wide | 2. | 36 $cm^2$ |
| c. | The perimeter of a square of side length 10 cm | 3. | 18 $cm^2$ |
| d. | The area of a rectangle with two dimensions 6 cm and 3 cm | 4. | 40 cm |

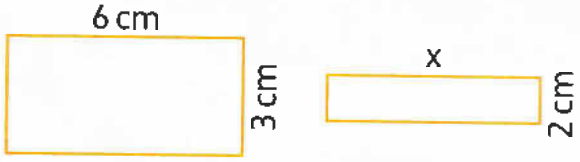
**5.** The triangle and square have the same perimeter.

Find x




**6.** These two rectangles have the same area.

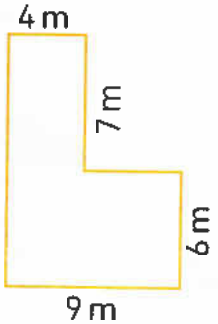
Find the length of the second rectangle.




**7.** Wael wants to place a wooden fence around his vegetable garden.

Each meter of fencing costs 10 L.E.

Find the cost of the new fence.



Theme 2 | Mathematical Operations and Algebraic Thinking

UNIT 5

# Multiplication as a Relationship

» **Concept 1 :** Multiplicative Comparisons

» **Concept 2 :** Properties and Patterns of Multiplication



**Fast Fact**

*An adult grasshopper can jump **10 times its length straight into the air** and **20 times its length horizontally** without using its wings. That is, if a grasshopper is 5 centimeters long, it can jump a distance of 1 meter.*

Concept 1

# Multiplicative Comparisons



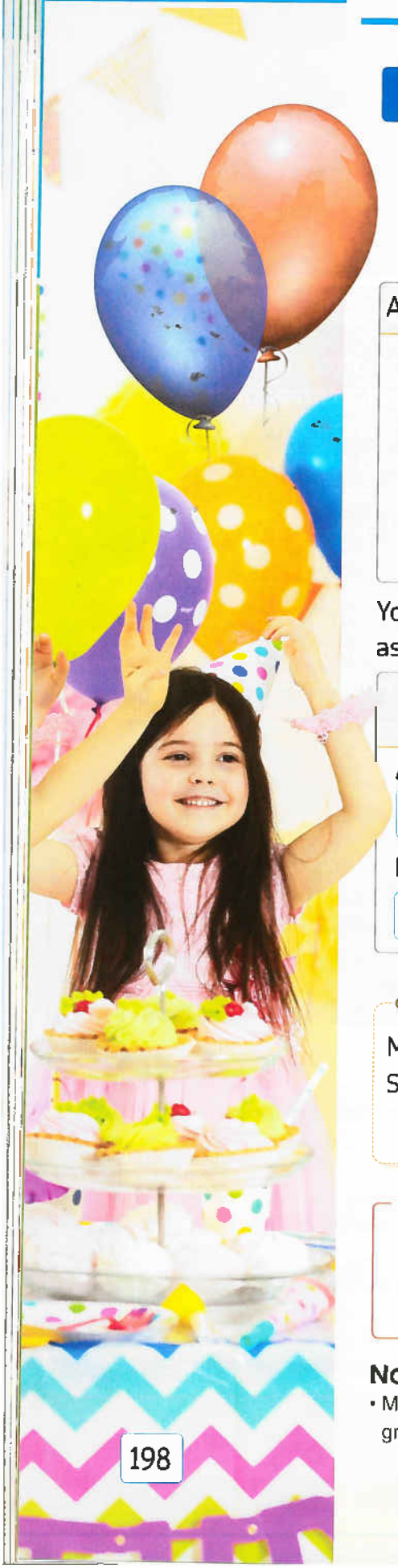
**Fast Fact**

*The ant is one of the world's strongest creatures in relation to its size. A single ant can carry* ***50 times*** *its own bodyweight, and they'll even work together to move bigger objects as a group !*

| Lesson No. | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
| Lesson 1 | Understanding Multiplicative Comparison | Estimate - Multiplicative comparison - Tape diagram | • Students will define multiplicative comparison.<br>• Students will model multiplicative comparison problems. |
| Lessons 2&3 | Creating Multiplicative Comparison Equations | Equation - Factor - Multiplicative comparison - Product | • Students will create equations to represent multiplicative comparison problems.<br>• Students will use letters to represent unknown quantities in equations. |
| | Solving Multiplicative Comparison Equations | Inverse | • Students will create and solve multiplicative comparison equations. |

Lesson 1

# Understanding Multiplicative Comparison



## Learn What is multiplicative comparison ?

Multiplicative comparison means comparing two things or sets that need multiplication.

For Example : In a birthday party,

| Amgad has **3 balloons** | Bassem has **6 balloons** |
|---|---|
|  |  |

You can use multiplication as a way to compare between what they have as follows :

| Tape diagram | Multiplicative comparison statement | Multiplication equations |
|---|---|---|
| **Amgad :** 3 balloons<br>**Bassem :** 3 balloons \| 3 balloons | Bassem has **twice** as many balloons as Amgad has.<br>Or 6 is **two times** the number 3 | $6 = 2 \times 3$ |

**Remember**

Multiplication is repeated addition.

So, you can rewrite a multiplication equation as repeated addition equation.

$6 = 2 \times 3$ ➡ $3 + 3 = 6$

**Hint**

$6 = 2 \times 3$ means

6 is two times the number 3 | 3 | 3 |

Or 6 is three times the number 2 | 2 | 2 | 2 |

**Notes for parents :**

- Make sure your child understands that the "tapes" in the tape diagram represent equal groups. When constructing a tape diagram, each tape should represent the same quantity.

## Example 1

**Complete the multiplicative comparison statements. Use tape diagram or multiplication facts to compare.**

a. Compare 15 and 5. 15 is _____ times the number 5.

b. Compare 50 and 10. 50 is _____ times the number 10.

### Solution

a. 3 [think : | 5 | 5 | 5 |, $15 = 3 \times 5$]

b. 5 [think : | 10 | 10 | 10 | 10 | 10 |, $50 = 5 \times 10$]

## Example 2

**Rewrite each equation using multiplication.**

a. $5 + 5 + 5 = 15$

b. $3 + 3 + 3 + 3 + 3 + 3 + 3 = 21$

### Solution

a. $3 \times 5 = 15$

b. $7 \times 3 = 21$

## Example 3

**Fill in the blanks to complete the multiplicative comparison statement for each tape diagram.**

a. | 8 | 8 | 8 | 8 | 8 | 8 |

_____ is _____ times the number 8.

b. | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |

_____ is _____ times the number 5.

### Solution

a. 48 is 6 times the number 8.

b. 40 is 8 times the number 5.

## Check your understanding

**Complete the table. Write a comparison statement or a multiplication equation.**

| Comparison Statement | Multiplication Equation |
|---|---|
| 21 days is 3 times as many as 7 days | |
| | $36 = 9 \times 4$ |
| 30 fish is 5 times as many as 6 fish. | |

- Children often confuse multiplicative comparison with additive comparison. For example, instead of multiplying by 4 to find a number 4 times the number 20, they might add 4.

# Exercise 22

on lesson 1

## Understanding Multiplicative Comparison

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Complete each of the following.

a. $3+3+3+3=$ _____ × _____ =

b. $4+4+4=$ _____ × _____ =

c. $2+2+2+2+2=$ _____ × _____ = _____

d. $8+8=$ _____ × _____ = _____

e. $7+7+7+7+7+7+7=$ _____ × _____ = _____

f. $5+5+5+5+5+5=$ _____ × _____ = _____

**2.** Rewrite each equation using multiplication.

a. 📖 $6+6+6=18$ _____

b. 📖 $2+2+2+2+2+2+2=14$ _____

c. $5+5+5=15$ _____

d. $2+2+2+2=8$ _____

e. $9+9+9+9=36$ _____

f. $10+10+10+10+10=50$ _____

**3.** Use tape diagram or multiplication facts to compare the numbers.

a. 📖 Compare 15 and 3. 15 is _____ times the number 3.

b. 📖 Compare 28 and 7. 28 is _____ times the number 7.

c. 📖 Compare 27 and 9. 27 is _____ times the number 9.

d. Compare 10 and 2. 10 is _____ times the number 2.

e. Compare 12 and 3. 12 is _____ times the number 3.

f. Compare 18 and 6. 18 is _____ times the number 6.

g. Compare 18 and 9. 18 is _____ times the number 9.

h. Compare 21 and 7. 21 is _____ times the number 7.

i. Compare 24 and 6. 24 is _____ times the number 6.

j. Compare 35 and 7. 35 is _____ times the number 7.

**4. Fill in the blanks to complete the multiplicative comparison statement for each tape diagram.**

a.

| 5 | 5 | 5 | 5 |
|---|---|---|---|

_____ is _____ times the number 5.

b.

| 8 | 8 | 8 |
|---|---|---|

_____ is _____ times the number 8.

c.

| 4 | 4 | 4 | 4 |
|---|---|---|---|

_____ is _____ times the number 4.

d.

| 2 | 2 | 2 | 2 | 2 | 2 |
|---|---|---|---|---|---|

_____ is _____ times the number 2.

e.

| 3 | 3 | 3 | 3 | 3 | 3 | 3 |
|---|---|---|---|---|---|---|

_____ is _____ times the number 3.

f.

| 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
|---|---|---|---|---|---|---|---|

_____ is _____ times the number 6.

g.

| 10 | 10 | 10 | 10 |
|---|---|---|---|

_____ is _____ times the number 10

h.

| 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
|---|---|---|---|---|---|---|---|

_____ is _____ times the number 7.

**5.** Write a multiplication equation or comparison statement as the example.

| | Comparison Statement | Multiplication Equation |
|---|---|---|
| Ex. | 10 is 5 times the number 2 | $10 = 5 \times 2$ |
| a. | 24 is 6 times the number 4 | |
| b. | 35 is 7 times the number 5 | |
| c. | 15 is 3 times the number 5 | |
| d. | 20 is 4 times the number 5 | |
| e. | | $60 = 10 \times 6$ |
| f. | | $16 = 8 \times 2$ |
| g. | | $6 = 2 \times 3$ |
| h. | | $5 = 5 \times 1$ |

## Challenge

**6.** Hanan has 40 photos. She has 5 times as many photos as Hany.
How many photos does Hany have ?



Hany [ ? ]

Hanan [ ? ] [ ? ] [ ? ] [ ? ] [ ? ]

40

# Multiple Choice Questions

Choose the correct answer.

1. 45 is _____ times the number 5. [Sharkia 22]

A. 9 B. 6
C. 5 D. 40

2. 30 is _____ times the number 6.

A. 3 B. 4
C. 5 D. 6

3. 10 times the number 430 is _____ [Kalyoubia 22]

A. 430 B. 4,300
C. 43,00 D. 430,000

4. The multiplication equation of $5 + 5 + 5 + 5 = 20$ is _____

A. $2 \times 10 = 20$ B. $4 \times 5 = 20$
C. $20 \times 1 = 20$ D. $10 + 10 = 20$

5. The multiplication equation of $6 + 6 + 6 = 18$ is _____

A. $18 \times 1 = 18$ B. $8 + 10 = 18$
C. $2 \times 9 = 18$ D. $3 \times 6 = 18$

6. The multiplication equation of the comparison statement "36 is 4 times the number 9" is _____

A. $9 + 9 + 9 + 9 = 36$ B. $36 = 6 \times 6$
C. $36 = 4 \times 9$ D. $3 \times 12 = 36$

7. The multiplication equation of $10 + 10 + 10 = 30$ is _____

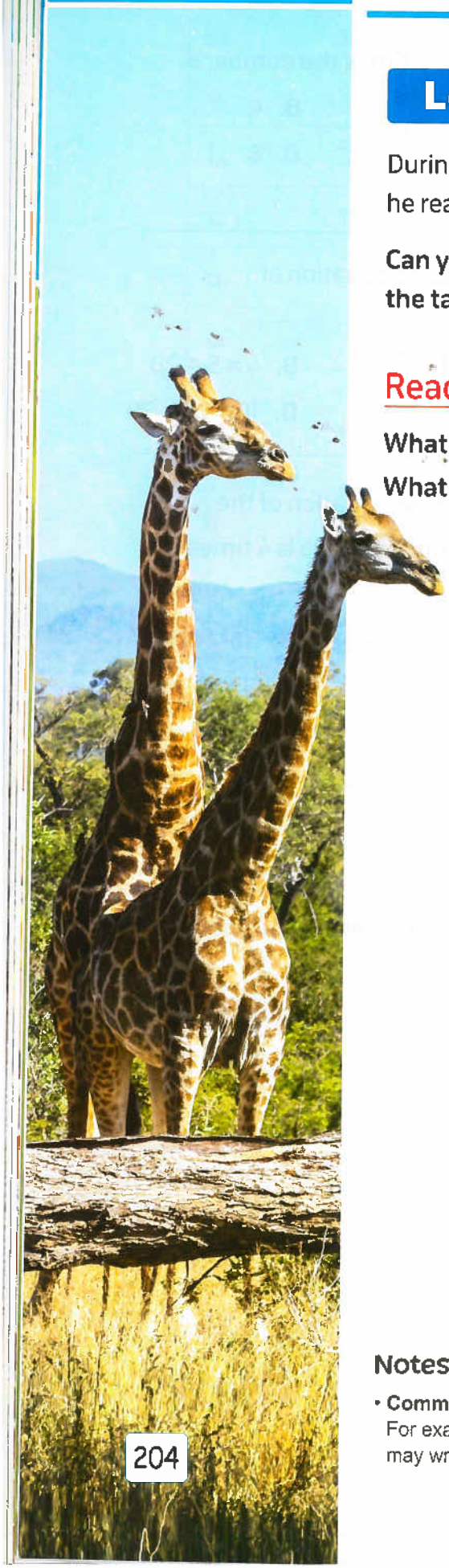
A. $5 \times 6 = 30$ B. $3 \times 10 = 30$ C. $10 + 20 = 30$ D. $1 \times 30 = 30$

8. The multiplication equation of the comparison statement "20 is 10 times the number 2" is _____

A. $20 = 10 \times 2$ B. $20 = 10 + 10$ C. $20 = 4 \times 5$ D. $20 = 1 \times 20$

Lessons
# 2&3

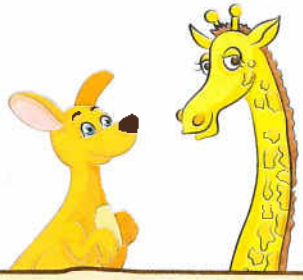
- **Creating Multiplicative Comparison Equations**
- **Solving Multiplicative Comparison Equations**



## Learn

During Emad's visit to the Zoo, he read this information.

**Can you help him to calculate the tall of the giraffe ?**



The giraffe in the zoo is 3 times as tall as the kangaroo. The kangaroo is 2 m tall. How tall is the giraffe?

### Read and Understand

**What do you know ?** The kangaroo is 2 m tall.

**What are you trying to find ?** Find how tall is the giraffe.

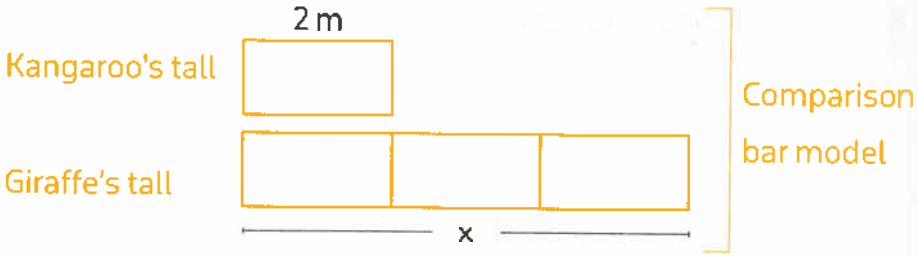
### Plan and Solve

**What strategy will you use ?**

*Strategy :* **Write a multiplicative comparison equation**

1. Use a letter to represent the unknown.
   Let the tall of the giraffe be x.

2. The giraffe is 3 times as tall as the kangaroo means, x is 3 times 2




3. Write an equation : $x = 3 \times 2$

4. Solve the equation : $x = 6$

**So, the giraffe is 6 m tall.**

**Notes for parents :**

- **Common Error :** Your child may incorrectly place the unknown in an equation. For example, if your child is asked to write 12 is 3 times the number a , he/she may write $12 \times 3 = a$ , instead of $12 = 3 \times a$ or $3 \times a = 12$

## Example 1

**Write an equation based on the comparison statement.**

**Use a letter to represent the unknown.**

a. 3 times the number 5 is _____

b. 12 is 6 times as many as _____

### Solution

a. $3 \times 5 = a$

b. $12 = 6 \times m$

## How to solve multiplication comparison equation ?

You know that

$$\underset{\text{Product}}{6} = \underset{\text{Factor}}{3} \times \underset{\text{Factor}}{2}$$

- Solving an equation means to find the value of the unknown that makes the equation true.

1. If the unknown is the **product,** use **multiplication.**

$$\underset{\text{Product}}{m} = \underset{\text{Factor}}{3} \times \underset{\text{Factor}}{2}$$

**Multiply :** $m = 6$

2. If the unknown is **one of the two factors,** use **division.**

$$\underset{\text{Product}}{6} = \underset{\text{Factor}}{m} \times \underset{\text{Factor}}{2}$$

**Divide :** $m = 6 \div 2 = 3$

## Example 2

**Write an equation for each of the following comparisons and then solve it.**

a. What number is 3 times the number 7 ?

b. 24 is 4 times a number. What is this number ?

c. 12 is 3 times a number. What is this number ?

- It is important to note that the unknown can be in different positions in the equation. Explain that to solve an equation, you find what the unknown number is.

## Solution

a. **Equation :** $3 \times 7 = m$
**Answer :** $m = 21$
The number is 21

b. **Equation :** $24 = 4 \times h$
**Answer :** $h = 24 \div 4 = 6$
The number is 6

c. **Equation :** $12 = 3 \times a$
**Answer :** $a = 12 \div 3 = 4$
The number is 4

## Example 3

Write an equation for the following comparison and then solve.
Wael ate 5 figs in the evening. His older brother ate 4 times as Wael ate.
**How many figs did his brother eat ?**



## Solution

Let the number of figs of his brother be a.

- **Equation :** $a = 4 \times 5$
- **Answer :** $a = 20$

His brother ate 20 figs.

## Example 4

There were thirty-five adults in line at a movie theater. That is seven times the number of children in another line. **How many children were in this line ?**



## Solution

Let the number of children be n. Then, 35 equals 7 times n

- **Equation :** $35 = 7 \times n$
- **Use division to solve :** $n = 35 \div 7 = 5$

So, the number of children in the line is 5 children.

## Check your understanding

1. **Solve each of the following equations.**

a. $x = 3 \times 6$

b. $14 = 7 \times n$

c. $6 \times y = 24$

2. **Write an equation to represent the situation below, and then solve.**
Farmer Wael has 20 sheep. He has twice the number of sheep as farmer Sameh.
What is the number of sheep of farmer Sameh ?

**Notes for parents :**

- Explain that the missing number in an equation is represented by a blank, but we can use letters to represent missing numbers.

# Exercise 23

on lessons 2&3

- Creating Multiplicative Comparison Equations
- Solving Multiplicative Comparison Equations

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Write an equation based on the comparison statement. Use a letter to represent the unknown number. You do not have to solve the equations.



a. 4 times the number 3 is _____

b. 18 is 6 times as many as _____

c. 2 times the number 7 is _____

d. 24 is 4 times as many as _____

e. 25 is 5 times as many as _____

f. 7 times the number 2 is _____

g. 30 is 5 times as many as _____

h. 7 times as many as 4 is _____

i. 6 times the number _____ is 48.

j. 27 is _____ times the number 9.

k. 6 is _____ times the number 2.

l. 8 times the number _____ is 24.

m. 5 times the number _____ is 15.

**2.** Solve each of the following.

| | | |
|---|---|---|
| a. $y = 5 \times 10$ | b. $x \times 3 = 15$ | c. $7 \times b = 21$ |
| d. $3 \times 4 = x$ | e. $5 \times b = 50$ | f. $m \times 4 = 16$ |
| g. $z = 5 \times 1$ | h. $n \times 2 = 18$ | i. $5 \times k = 35$ |

**3.** **Write an equation for the comparisons. Use a letter to represent the unknown number. You do not have to solve the equations.**

a. Nadia collected 5 marbles in March. By May she had 4 times as many marbles. How many marbles does Nadia have in May ?



b. Hamed had 12 cookies, which was 3 times as many cookies as his brother Ahmed. How many cookies did Ahmed have ?



c. It took Aida 21 minutes to walk to school on Monday. On Tuesday, it took her 7 minutes to ride her bike to school. How many times as many was riding her bike as walking ?




d. Menna ran around the soccer field 4 times. Aya ran around the field twice as many times. How many times did Aya run around the field ?



e. Rana has 6 mangoes. Her brother Sherif has 18. How many times of mangoes does Sherif have ?



f. A restaurant sold eight times as many salads as they sold steaks. If they sold four steaks, how many salads did they sell ?



g. A pet store sold two cats. They sold six times as many dogs as they sold cats. How many dogs did they sell ?



**4. Write an equation for each of the following comparisons, and then solve it.**

a. What number is 5 times the number 6 ?

b. 36 is 4 times a number. What is this number ?

c. Ayman ate 4 figs in the morning. His older brother ate 3 times as many. How many figs did his brother eat ?

[Giza - 6th October 22]



d. Mona sent twenty-five text messages a day. Esslam sent five a day. How many times as many texts did Mona send than Esslam sent ?



e. It takes Wael six oranges to make a small glass of orange juice. He uses eight times as many for a large glass. How many oranges does he use for a large glass ?



f. Nora had four times as many Pounds as her sister. Her sister has three Pounds. How much money does Nora have ?



**5.**


Empty Bus Seats


Motorbike

**How many seats ? Use the information in the table to compare numbers of seats in different modes of transportation. Then, enter and solve an equation for each comparison.**

| Means of Transportation | Number of Seats |
|---|---|
| Bike | 1 |
| Motorcycle | 2 |
| Car | 4 |
| Truck | 6 |
| Bus | 36 |
| Metro train | 48 |

**a.** How many times as many seats are in a truck than on a motorbike ?

Equation : _____ Answer : _____

**b.** How many times as many seats are on a bus than in a truck ?

Equation : _____ Answer : _____

**c.** How many times as many seats are on the metro train than in a car ?

Equation : _____ Answer : _____

**d.** A metro train can fit how many times as many people as a truck ?

Equation : _____ Answer : _____

**e.** A bus has how many times as many seats as a car ?

Equation : _____ Answer : _____

## Challenge

**6.** Bassem sold 9 chocolate bars. Marawan sold three times as many as Bassem. Esslam sold 9 fewer than Marawan. How many bars did Esslam sell ?

_____

# Multiple Choice Questions

**Choose the correct answer.**

**1.** The equation based on the comparison statement «3 times the number 7» is ____

A. $3 \times 7 = A$ B. $7 - 3 = A$

C. $3 + 7 = A$ D. $7 \div 3 = A$

**2.** The equation based on the comparison statement «45 is a times the number 9» is ____

A. $45 = 9 - a$ B. $45 = a \times 9$

C. $45 = a + 9$ D. $45 = 9 - a$

**3.** What number is 10 times the number 13 ?

A. 130 B. 3

C. 23 D. 1,300

**4.** There are 4 bicycles on a road, and 14 times as many cars as bicycles. How many cars are on the road ? [Suez 22]

A. 46 B. 14

C. 56 D. 18

**5.** There were 24 adults and 3 children in line at a movie theater. How many times the adults were in the line as the children ?

A. 28 B. 36

C. 7 D. 8

**6.** Noha sent 18 text messages a day. Ali sent 3 a day. How many times as many texts did Noha send as Ali ?

A. 5 B. 4

C. 3 D. 6

**7.** It takes Wael 7 oranges to make a small glass of orange juice. He uses 6 times as many for a large glass. How many oranges does he use for a large glass ?

A. 14 B. 42 C. 2 D. 68

**8.** Ola had 4 times as many dollars as her sister. Her sister has 3 dollars. How much money does Ola have ?

A. 10 B. 11 C. 12 D. 13

**9.** Hala was playing basketball. She made seven times as many shots as she missed. If she made 28 shots, how many shots did she miss ?

A. 1 B. 2 C. 3 D. 4

**10.** Hany is twice as old as his brother. His brother is 8 years old. Which equation can be used to find Hany's age ?

A. $2 + a = 8$ B. $2 \times a = 8$ C. $2 \times 8 = a$ D. $8 + 2 = a$

Concept 2

# Properties and Patterns of Multiplication




**Fast Fact**

*The fastest man in the world is Usain Bolt. He can run about 44 kilometers per hour for short distances. One of the fastest cars in the world in 2017 was driven to an average speed 10 times faster than Usain Bolt. How fast can this car move ?*

| Lesson No. | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
| Lessons 4&5 | Commutative Property of Multiplication | Array - Column - Commutative Property of Multiplication - Factor - Horizontal - Product - Row - Vertical | • Students will explain the Commutative Property of Multiplication.<br>• Students will apply the Commutative Property of Multiplication to solve problems. |
| | Patterns of Multiplying by 10s | Identity Property of Multiplication - Zero Property of Multiplication | • Students will apply the Identity Property of Multiplication to solve problems.<br>• Students will apply the Zero Property of Multiplication to solve problems.<br>• Students will identify patterns that occur when multiplying by 10, 100, and 1,000. |
| Lesson 6 | Review Exploring Patterns in Multiplication | Multiples | • Students will apply place value concepts to multiply by multiples of 10, 100 and 1,000.<br>• Students will explain patterns when multiplying by multiples of 10, 100, and 1,000. |
| Lessons 7&8 | Exploring More Patterns in Multiplication | Associative Property of Multiplication - Commutative Property of Multiplication - Parentheses | • Students will explain the Associative Property of Multiplication.<br>• Students will apply the Associative Property of Multiplication to solve problems. |
| | Applying Patterns in Multiplication | Decompose - Factors - Multiples | • Students will apply decomposing and the Associative Property of Multiplication to solve equations with multiples of 10, 100, or 1,000. |

Lessons
# 4&5

- **Commutative Property of Multiplication**
- **Patterns of Multiplying by 10s**



## Learn 1 Multiplication properties

Multiplication properties are rules for multiplication that are always true. In this lesson, you will learn three properties of multiplication.

- Commutative Property.
- Identity Property.
- Zero Property.

### Commutative Property of Multiplication

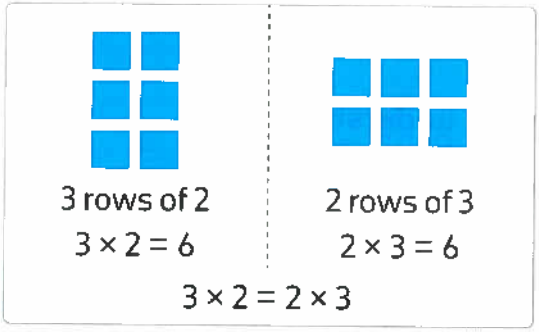
Natalie knit 3 scarves. She used 2 balls of yarn for each scarf.
How many balls of yarn did she use in all ?



You can use multiplication properties to help you find products.

**Multiply 3 × 2**

Commutative Property states that when you multiply two factors in any order the product is the same.




**So,** Natalie used 6 balls of yarn.

### Identity Property of Multiplication

The Identity Property states that the product of 1 and any number equals that number.

For Example :

- 3 × 1 = 3
- 1 × 27 = 27
- 548 × 1 = 548

### Zero Property of Multiplication

The Zero Property states that the product of zero and any number equals 0.

For Example :

- 4 × 0 = 0
- 0 × 13 = 0
- 217 × 0 = 0

**Notes for parents :**

- Using multiplication properties makes finding products easier.

## Example 1

**Complete each of the following.**

a. $3 \times 8 =$ ____ $\times 3$

b. $10 \times$ ____ $= 7 \times 10$

c. ____ $\times 5 = 5 \times 9$

d. $2 \times 11 = 11 \times$ ____

e. $15 \times 1 =$ ____

f. $5 \times 0 =$ ____

g. $170 \times$ ____ $= 0$

h. ____ $\times 350 = 350$

### Solution

a. 8 b. 7 c. 9 d. 2

e. 15 f. 0 g. 0 h. 1

## Example 2

**Mr. Hany has 12 pens.**
**Write an equation using the Commutative property of multiplication to describe two ways he can arrange his pens.**



### Solution

- $3 \times 4 = 4 \times 3 = 12$
- $2 \times 6 = 6 \times 2 = 12$

### Check your understanding

**Find the missing number. Name the property you used.**

a. ☐ $\times 1 = 12$ [____]

b. $9 \times$ ☐ $= 0$ [____]

c. $5 \times 6 =$ ☐ $\times 5$ [____]

d. ☐ $\times 500 = 0$ [____]

e. $1 \times$ ☐ $= 708$ [____]

f. $2 \times$ ☐ $= 10 \times 2$ [____]



**Notes for parents :**

- You may wish to ask your child questions such as the following as you observe your child at work :
  - When you multiply with 1, which number is the product ?
  - When you multiply any number by 0 , which number is the product ?

## Learn 2 Multiplying by 10 , 100 and 1,000

You can use a basic fact and a pattern to find the product.

| TH | H | T | O |
|---|---|---|---|
| | | | 4 |
| | | 4 | 0 |
| | 4 | 0 | 0 |
| 4 | 0 | 0 | 0 |

$4 \times 1 = 4$ [Think : Use the basic fact $4 \times 1 = 4$]

$4 \times 10 = 40$ [Put 1 zero at the end]

$4 \times 100 = 400$ [Put 2 zeroes at the end]

$4 \times 1{,}000 = 4{,}000$ [Put 3 zeroes at the end]

Look for a pattern of zeroes.

### Example 3

Fill in the blanks below.

a. $6 \times 10 =$ _____

b. $2 \times 100 =$ _____

c. $7 \times 1{,}000 =$ _____

d. $21 \times 10 =$ _____

e. $50 \times 10 =$ _____

f. $70 \times 100 =$ _____

g. $90 = 9 \times$ _____

h. $170 =$ _____ $\times 17$

i. _____ $\times 1{,}000 = 50{,}000$

### Solution

a. 60

b. 200

c. 7,000

d. 210

e. 500

f. 7,000

g. 10

h. 10

i. 50

### Check your understanding

Complete each of the following.

a. $1{,}000 \times 5 =$ _____

b. _____ $= 100 \times 1$

c. $30 \times 10 =$ _____

d. $800 = 8 \times$ _____

e. $190 =$ _____ $\times 19$

f. $20{,}000 =$ _____ $\times 1{,}000$

• Let your child discover the pattern of zeroes when he/she multiply by 10 , 100 and 1,000.

# Exercise 24

on lessons 4&5

- Commutative Property of Multiplication
- Patterns of Multiplying by 10s

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Apply the commutative property of multiplication to complete each equation.

a. 5 × 7 = ____ × 5

b. 20 × ____ = 6 × 20

c. 34 × ____ = 21 × 34

d. 25 × 52 = 52 × ____ [Matrouh 22]

e. 23 × 9 = ____ × 23

f. 48 × 12 = 12 × ____ [Souhag 22]

g. ____ × 15 = 15 × 11

h. ____ × 3 = ____ × 9

i. 4 × ____ = 5 × ____

j. 0 × ____ = ____ × 0

**2.** Apply the commutative property of multiplication to find the unknown value.

a. 33 × 4 = 4 × a ____

b. b × 9 = 9 × 8 ____

c. a × 7 = 7 × 8 ____

d. 5 × 9 = 9 × b ____

e. 16 × a = 7 × 16 ____

f. 5 × 93 = b × 5 ____

g. 16 × k = 11 × 16 ____

h. 3 × m = 100 × 3 ____

i. 4 × n = 7 × 4 ____

j. 1 × 4 = 4 × a ____

**3.** Solve each of the following.

a. 5 × 1

b. 12 × 1

c. 672 × 1

d. 8 × 0

e. 16 × 0

f. 758 × 0

g. 0 × 230

h. 1 × 356

i. 0 × 43

**4.** What is the value of each of the following.

a. 8 × 10 = ____

b. 100 × 5 = ____

c. 3 × 1,000 = ____

d. ____ = 1,000 × 2

e. 700 = 7 × ____

f. 9 × ____ = 9,000

g. 19,000 = ____ × 19

h. ____ × 10 = 70

i. ____ × 245 = 24,500 [Cairo - El-Tebbeen 22]

j. Challenge: 4 × 10,000 = ____

## Story Problems

**5.** 📖 Mr. Saleh has 24 beans. Write an equation using the commutative property of multiplication to describe two ways he can arrange his beans.

**6.** Bassem has 20 apples. Write an equation using the commutative property of multiplication to describe two ways he can arrange the apples.



**7.** 📖 Ahmed has 48 toy cars and wants to display them in his room. He wants to arrange them in equal rows and equal columns. How can he display his cars ? Draw your solution.



**8.** The fastest man in the world is Usain Bolt. He can run about 44 kilometers per hour for short distances. One of the fastest cars in the world can move 10 times faster than Usain Bolt. What is the speed of this car ?



Usain Bolt


Koensigsegg agera Rs

## Challenge

**9.** **Find the value of a and b.**

a. $52 \times a = a \times 73$

b. $112 \times a = 19 \times b$

# Multiple Choice Questions

**Choose the correct answer.**

**1.** $6 \times 5 =$ ——— $\times 6$

A. 6 B. 5

C. 4 D. 3

**2.** $35 \times 0 =$ ——— [El-Kalyoubia 22]

A. 1 B. 34

C. 0 D. 43

**3.** $1 \times 15 =$ ———

A. 1 B. 15

C. 0 D. 16

**4.** $51 \times 100 =$ ———

A. 5,100 B. 510

C. 51,000 D. 0

**5.** If $a \times 31 = 31 \times 9$, then $a =$ ———

A. 7 B. 40

C. 31 D. 9

**6.** $301 \times$ ——— $= 30{,}100$

A. 10 B. 100

C. 1,000 D. 0

**7.** Which equation would be best to include in an explanation of the commutative property of multiplication? [Alexandria - Borg El-Arab 22]

A. $3 \times 1 = 3$ B. $9 \times 6 = 6 \times 9$

C. $6 \times (2 \times 4) = (6 \times 2) \times 4$ D. $5 \times 16 = (5 \times 11) + (5 \times 5)$

**8.** Determine which choice best shows the identity property of multiplication.

A. $0 \times 6 = 0$ B. $1 \times 6 = 6$

C. $1 \times 6 = 6 \times 1$ D. $2 \times 6 = 6 \times 2$

**9.** Determine which choice best shows the zero property of multiplication.

A. $1 \times 5 = 5$ B. $2 \times 3 = 3 \times 2$

C. $6 \times 100 = 600$ D. $0 \times 5 = 0$

**10.** Hany bought 3 mobiles, if the price of each one is 1,000 pounds, then the total price of them equal ——— pounds.

A. $3 \times 100$ B. 30

C. $1{,}000 \times 3$ D. $1{,}000 + 3$

Lesson 6



# Review Exploring Patterns in Multiplication

Just for Reading

## Learn Multiplying by multiples of 10 , 100 and 1,000

Samy and his father are shopping at a music store.
They are picking out some CDs to buy.
The store displays their CDs in display racks. Each rack holds 300 CDs.
**How many CDs can 4 racks hold ?**




**Multiply 4 × 300 = n**

300 is a multiple of 100. When multiplying a multiple of 10, 100 or 1,000, you can use basic facts and patterns of zeroes to help you multiply.

4 × 3 = 12 ← basic fact.

4 × 30 = 120 The product has the same number of zeroes as the factor. Unless the basic fact has a zero in the product.

4 × 300 = 1,200

**So,** four racks can hold 1,200 CDs.

### How to multiply by a multiple of 10 , 100 or 1,000 ?

**Multiply 6 × 700**

| | |
|---|---|
| Circle the fact. | 6 × 700 |
| Find the product. | 42 |
| Count the zeroes in the factors. | 2 |
| Write that number of zeroes in the product. | 42 00 |
| Add commas, if needed. | 4,200 |

In a short way,

6 × 700 = 4,200
42

**Multiply 5 × 9,000**

| | |
|---|---|
| Circle the fact. | 5 × 9,000 |
| Find the product. | 45 |
| Count the zeroes in the factors. | 3 |
| Write that number of zeroes in the product. | 45 000 |
| Add commas, if needed. | 45,000 |

In a short way,

5 × 9,000 = 45,000
45

**Notes for parents :**

- Let your child find the basic multiplication fact first. Then ask him/her to find the number of zeroes needed in the product and write the same number of zeroes to the right of the basic fact product.

## Example 1

**Use basic facts and patterns to find each product.**

a. $5 \times 7$
$5 \times 70$
$5 \times 700$
$5 \times 7{,}000$

b. $9 \times 6$
$9 \times 60$
$9 \times 600$
$9 \times 6{,}000$

c. $5 \times 8$
$5 \times 80$
$5 \times 800$
$5 \times 8{,}000$

d. $9 \times 40$

e. $7 \times 300$

f. $8 \times 6{,}000$

*Ask Yourself*
- *What basic fact can I use ?*
- *How many zeroes should be in the product ?*

### Solution

a. $5 \times 7 = 35$
$5 \times 70 = 350$
$5 \times 700 = 3{,}500$
$5 \times 7{,}000 = 35{,}000$

b. $9 \times 6 = 54$
$9 \times 60 = 540$
$9 \times 600 = 5{,}400$
$9 \times 6{,}000 = 54{,}000$

c. $5 \times 8 = 40$
$5 \times 80 = 400$
$5 \times 800 = 4{,}000$
$5 \times 8{,}000 = 40{,}000$

d. $9 \times 40 = 360$

e. $7 \times 300 = 2{,}100$

f. $8 \times 6{,}000 = 48{,}000$

## Example 2

**Fill in the blanks below.**

a. $9 \times$ _____ $= 270$

b. _____ $\times 8 = 3{,}200$

c. _____ $\times 6{,}000 = 18{,}000$

d. $500 \times$ _____ $= 4{,}500$

### Solution

a. $9 \times 30 = 270$

b. $400 \times 8 = 3{,}200$

c. $3 \times 6{,}000 = 18{,}000$

d. $500 \times 9 = 4{,}500$

## Check your understanding

**Choose the correct answer.**

a. What is $400 \times 5$ ?
A. 20 B. 200
C. 2,000 D. 20,000

b. _____ $\times 5 = 250$
A. 5 B. 25
C. 50 D. 500

c. $300 \times$ _____ $= 1{,}800$
A. 6 B. 60
C. 600 D. 6,000

**Notes for parents :**

- Ask your child what basic fact can he/her use ? and how many zeroes should be in the product ?

Lessons
# 7&8

- **Exploring More Patterns in Multiplication**
- **Applying Patterns in Multiplication**



## Learn 1 Associative property in multiplication

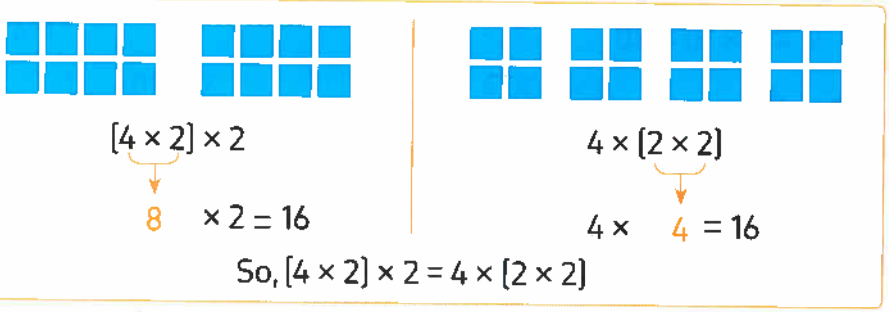
Suppose you make Super Cheesy Sandwiches for 4 people. Each person gets 2 sandwiches. Each sandwich has 2 slices of cheese.
How many slices of cheese will you need ?

Here are some ways to find the product of $4 \times 2 \times 2$.



### Associative Property of Multiplication

Associative Property states that when you group factors in different ways, the product is the same.
Use parentheses to group the factors you multiply first.




So, $[4 \times 2] \times 2 = 4 \times [2 \times 2]$

## Example 1

**Use the grouping or associative property of multiplication and complete.**

a. $[6 \times 2] \times 5 = 6 \times [\square \times 5]$

b. $[20 \times \square] \times 10 = 20 \times [15 \times 10]$

c. $7 \times [5 \times 2] = [7 \times \square] \times 2$

d. $315 \times [16 \times 120] = [\square \times \square] \times 120$

## Solution

a. $[6 \times 2] \times 5 = 6 \times [2 \times 5]$

b. $[20 \times 15] \times 10 = 20 \times [15 \times 10]$

c. $7 \times [5 \times 2] = [7 \times 5] \times 2$

d. $315 \times [16 \times 120] = [315 \times 16] \times 120$

**Notes for parents :**

- Your child may forget to multiply by the third factor.
  To check, ask your child to group the factors in a different way and multiply again.

## Example 2

**Solve each problem. Multiply the part in the parentheses first.**

a. $[3 \times 2] \times 9$

b. $10 \times [5 \times 3]$

### Solution

a. $[3 \times 2] \times 9 = 6 \times 9 = 54$

b. $10 \times [5 \times 3] = 10 \times 15 = 150$

## Example 3

**Place parentheses to show one way to find the product.**
**Then show another way to use parentheses to find the product.**

a. $3 \times 2 \times 5$

b. $4 \times 10 \times 2$

**Hint**
If there are no parentheses, you can choose which pair of numbers to multiply first.

### Solution

a. $3 \times 2 \times 5 = [3 \times 2] \times 5$
$= 6 \times 5 = 30$
Or $3 \times 2 \times 5 = 3 \times [2 \times 5]$
$= 3 \times 10 = 30$

b. $4 \times 10 \times 2 = [4 \times 10] \times 2$
$= 40 \times 2 = 80$
Or $4 \times 10 \times 2 = 4 \times [10 \times 2]$
$= 4 \times 20 = 80$

## Example 4

**Apply the commutative and the associative properties of multiplication to solve the problems.**

a. $3 \times 7 \times 2$

b. $4 \times 8 \times 2$

**Hint**
It is helpful to use commutative property to multiply the small factors first.

### Solution

a. $3 \times 7 \times 2 = 3 \times 2 \times 7$ [Commutative property]
$= [3 \times 2] \times 7$ [Associative property]
$= 6 \times 7 = 42$

b. $4 \times 8 \times 2 = 8 \times 4 \times 2$ [Commutative property]
$= 8 \times [4 \times 2]$ [Associative property]
$= 8 \times 8 = 64$

## Check your understanding

**Find each product.**

a. $[4 \times 2] \times 6 =$ _____

b. $5 \times [5 \times 2] =$ _____

c. $8 \times 5 \times 2 =$ _____

d. $3 \times 2 \times 8 =$ _____

**Notes for parents :**

- After your child has reviewed the commutative property of multiplication, ask him/her to predict whether it would make a difference which two factors they multiplied first in $8 \times 4 \times 2$.

## Learn 2 Decomposing and associative property of multiplication

- You have learned before how to multiply by multiples of 10 , 100 and 1,000 using a basic fact and a pattern of zeroes.
- Here you will use decomposing and associative property to solve problems.

### Example 5

**Find the product : 8 × 30**

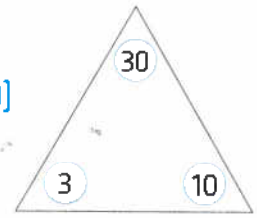
**Solution**

$8 \times 30 = 8 \times [3 \times 10]$ [Decompose 30 to 3 × 10]

$= [8 \times 3] \times 10$ [Associative Property]

$= 24 \times 10$

$= 240$




**Another Way**

$8 \times 30 = 240$

24

### Example 6

**Solve using a strategy you prefer.**

a. $9 \times 60$ b. $600 \times 7$ c. $4{,}000 \times 6$

**Solution**

a. $9 \times 60 = 540$

54

b. $600 \times 7$

$= 4{,}200$

c. $4{,}000 \times 6$

$= [1{,}000 \times 4] \times 6$

$= 1{,}000 \times [4 \times 6]$

$= 1{,}000 \times 24$

$= 24{,}000$

### Check your understanding

**Use decomposing and associative property to find each product.**

a. $4 \times 40 =$ _____

b. $5 \times 500 =$ _____

c. $2 \times 8{,}000 =$ _____

- The product has the same number of zeroes as the number of zeroes in the factor with zeroes unless the basic fact has a zero.
- Let your child solve using strategy he/she prefer.

# Exercise 25

on lessons 7&8

- Exploring More Patterns in Multiplication
- Applying Patterns in Multiplication

REMEMBER UNDERSTAND APPLY PROBLEM SOLVING From the school book

**1.** Write the missing number.

a. $(8 \times 4) \times 2 = 8 \times (\square \times 2)$

b. $5 \times (10 \times 2) = (5 \times \square) \times 2$

c. $2 \times (6 \times 5) = (2 \times 6) \times \square$

d. $(3 \times 9) \times 5 = \square \times (9 \times 5)$

e. $5 \times 14 \times 2 = (5 \times \square) \times 14$

f. $3 \times 6 \times 2 = 6 \times (\square \times 2)$

**2.** Solve each problem. Multiply the part in the parentheses first. Show your work.

a. $(2 \times 3) \times 4 =$ ____

b. $(5 \times 2) \times 3 =$ ____

c. $2 \times (3 \times 4) =$ ____

d. $5 \times (2 \times 3) =$ ____

e. $(2 \times 6) \times 3 =$ ____

f. $9 \times (2 \times 3) =$ ____

g. $8 \times (6 \times 5) =$ ____

h. $(4 \times 5) \times 7 =$ ____

**3.** Applying the properties of multiplication to solve the problems.

a. $3 \times 2 \times 5 =$ ____

b. $4 \times 6 \times 2 =$ ____

c. $2 \times 9 \times 3 =$ ____

d. $3 \times 2 \times 3 =$ ____

e. $5 \times 4 \times 4 =$ ____

f. $8 \times 4 \times 5 =$ ____

g. $9 \times 5 \times 6 =$ ____

h. $2 \times 5 \times 14 =$ ____

**4.** Place parentheses to show one way to find the product. Then show one other way to use parentheses to find the product.

a. $5 \times 4 \times 2 =$ _____

b. $3 \times 6 \times 2 =$ _____

c. $2 \times 3 \times 4 =$ _____

d. $8 \times 5 \times 10 =$ _____

**5.** Write how many to make up each number as the example.

▶ Example : 40 = 4 Tens

a. 30 = _____ Tens

b. 80 = _____ Tens

c. 160 = _____ Tens

d. 140 = _____ Tens

e. 120 = _____ Tens

f. 110 = _____ Tens

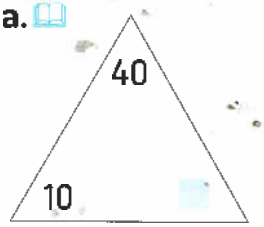
g. 600 = _____ Hundreds

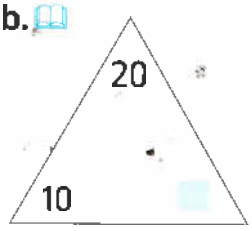
h. 5,000 = _____ Thousands

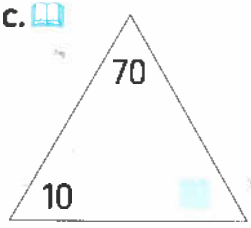
i. 2,000 = _____ Thousands

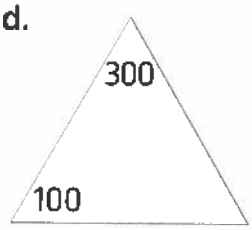
j. 900 = _____ Hundreds

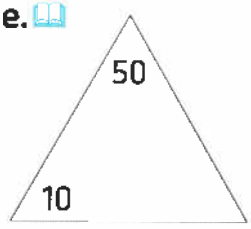
**6.** Write the missing factor in the box.

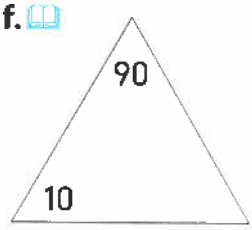
a. 

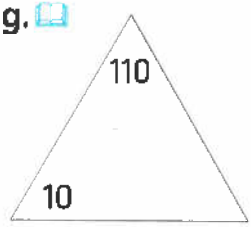

b. 

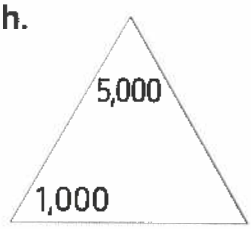

c. 


d. 


e. 


f. 


g. 


h. 


**7.** Multiplying by multiples 10 , 100 and 1,000 Use decomposing and the Associative Property of Multiplication to solve each problem.

a. 7 × 20 = _____

b. 5 × 50 = _____

c. 4 × 700 = _____

d. 3 × 4,000 = _____

e. 9 × 500 = _____

**8.** Decompose each multiple of 10 , 100 or 1,000 before multiplying. Draw parentheses around the numbers you would multiply first, and then write the answer.

a. 5 × 70 = _____

b. 8 × 30 = _____

c. 4 × 40 = _____

d. $6 \times 600 =$ _____

e. $7 \times 7{,}000 =$ _____

**9.** Solve using a strategy you prefer.

a. $6 \times 90 =$ _____

b. $7{,}000 \times 6 =$ _____

c. $600 \times 4 =$ _____

d. $4{,}000 \times 5 =$ _____

e. $900 \times 3 =$ _____

**10.** Aisha bought 3 packs of water bottles. Each pack had 3 rows of 4 water bottles. How many water bottles did Aisha buy ?



**11.** Hany works 20 hours a week. If he makes L.E. 6 per hour. How much does Hany make in two weeks ?



**12.** Angy runs 2 kilometers a day. If she runs five days a week. How many kilometers does she run in 10 weeks ?

**13.** Review each student's work. Then, answer the questions.
How is Heba's and Ashraf's work the same ?
How are they different ? Which student's strategy do you prefer ? Why ?

| Heba's work | Ashraf's work |
|---|---|
| $(4 \times 8) \times 10$ | $4 \times (8 \times 10)$ |
| $= 32 \times 10$ | $= 4 \times 80$ |
| $= 320$ | $= 320$ |

**14.** 📖 **Writing about Math**

Use what you have learned about the Associative Property of Multiplication to help Farouk solve the problem. Use words and numbers to explain your thinking.

Farouk is trying to solve the problem $2 \times 7 \times 4$

He starts by solving $2 \times 7$ and gets 14. Place parentheses to show how Farouk started this problem. $2 \times 7 \times 4$

Next, he writes $14 \times 4$ but he does not know how to solve that multiplication problem. Can you show Farouk another way to solve the problem ?

## Challenge

**15.** Marawan's mom gives him L.E. 5 every day for lunch at school. If he only pays L.E. 3 for lunch, how much will he save in 10 weeks if he goes to school five days weekly ?

# Multiple Choice Questions

**Choose the correct answer.**

**1.** $2 \times [5 \times 4] = [2 \times$ ____ $] \times 4$

A. 2 B. 4

C. 5 D. 40

**2.** $3{,}000 \times 5 =$ ____

A. 15,000 B. 35,000

C. 3,005 D. 1,500

**3.** $[300 \times 7] \times 0 =$ ____

A. 2,100 B. 3,070

C. zero D. 307

**4.** $2 \times 3 \times 4 =$ ____

A. 234 B. 9

C. 24 D. 10

**5.** $3 \times 50 =$ ____

A. $3 \times 40 \times 10$ B. $3 + 50$

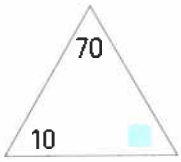
C. $3 \times 5 \times 0$ D. $3 \times 5 \times 10$

**6.** 600 = ____ Hundreds

A. 60 B. 600

C. 6 D. 60,000

**7.** The missing factor in the box equals ____




A. 7,000 B. 70

C. 700 D. 7

**8.** $[2 \times 6] \times 3 =$ ____

A. $2 \times [6 + 3]$

B. $[2 + 6] \times 3$

C. 63

D. $12 \times 3$

**9.** $5{,}000 \times 2 =$ ____

A. 1,000

B. 2 Thousands

C. 10 Hundreds

D. 10 Thousands

**10.** Marwan bought 5 packs of water bottles. Each pack had 2 rows of 4 water bottles. How many water bottles did Marwan buy?

A. 8 B. 10

C. 40 D. 100

**11.** Which equation would be best to include in an explanation of the Associative Property of Multiplication? [Alexandria - El-Montaza 22]

A. $[9 \times 12] \times 0 = 0$

B. $[3 \times 7] \times 2 = 3 \times [7 \times 2]$

C. $[4 \times 6] \times 1 = 4 \times 6$

D. $[11 \times 8] \times 9 = 9 \times [11 \times 8]$

# Unit Five Assessment




**1.** **Put (✓) to the correct statement or (✗) to the incorrect statement.**

a. The property : $5 \times 8 = 8 \times 5$ called Commutative Property. (Giza - 6th October 22) [ ]

b. $4 \times 3{,}000 = 4 \times 3 \times 100$ [El-Gharbia - Samanoud 22] [ ]

c. If $20 = 4 \times b$ , then $b = 16$ [Assiut - Manfalout 22] [ ]

d. $2 \times [7 \times 4] = [2 \times 7] \times 4$ [ ]

e. 6 times of 5 = 25 [El-Kalyoubia 22] [ ]

f. 5 times of 4 = 20 [El-Sharkia - Abo Kebeer 22] [ ]

**2.** **Choose the correct answer.**

a. $5 \times 9 = 9 \times$ _____

A. 5 B. 9 C. 14 D. 4

b. $375 \times$ _____ $= 37{,}500$

A. 10 B. 100 C. 1,000 D. 10,000

c. $0 \times 25 =$ _____

A. 25 B. 1 C. 0 D. 250

d. Which equation would be the best to include in an explanation of the Commutative Property of Multiplication ?

A. $3 \times 5 = 5 \times 3$ B. $4 \times 16 = [4 \times 11] + [4 \times 5]$

C. $[6 \times 4] \times 2 = 6 \times [4 \times 2]$ D. $5 \times 1 = 5$

e. Which equation would be the best to include in an explanation of the Associative Property of Multiplication ?

A. $[9 \times 12] \times 0 = 0$ B. $[4 \times 6] \times 1 = 4 \times 6$

C. $[3 \times 7] \times 2 = 3 \times [7 \times 2]$ D. $7 \times 6 = 6 \times 7$

f. A box has 7 green balls. The box has 5 times as many as yellow balls as green balls. How many yellow balls are in the box ?

A. 12 B. 35 C. 2 D. 75

**3.** **Complete.**

a. $4 \times 3 \times 7 = 4 \times$ _____ [Cairo - El-Kobba 22]

b. The multiplicative equation of $8 + 8 + 8 + 8 + 8 = 40$ is _____

c. The additive identify element is _____ [Alexandria - Montaza 22]

d. 3,200 = ... Hundreds

e. $4 \times 7 = 7 \times 4$ _____ Property of multiplication. [Port Said 22]

f. If $A \times 7 = 21$, then A = _____

**4.** **Compare. Write (> , < or =).**

a. $3 \times 50$ ☐ $3 \times 5 \times 10$

b. 14,000 ☐ 14 Hundreds

c. $7 \times 5$ ☐ $5 \times 7$

d. $3 + 0$ ☐ $3 \times 0$

**5.** A hotel has 28 floors. The hotel has 7 times as many floors as the building next door. How many floors does the building next door have ?

**6.** Mina runs 5 kilometers a day. If he runs 6 days a week. How many kilometers does he run in 7 weeks ?

**7.** Hany bought 3 packs of water bottles. Each pack had 3 rows of 4 water bottles. How many water bottles did Hany buy ? [Giza 22]

**8.** **Apply the properties of multiplication to solve the problems.**

a. $3 \times 2 \times 4$

b. $5 \times 7 \times 2$

**9.** **Find the unknown value.**

a. $7 \times 5{,}000 = 7 \times 5 \times m$

b. $(3 \times 7) \times 6 = 3 \times (m \times 6)$

c. $9 \times 4 = 4 \times m$

d. $248 \times m =$ zero

Theme 2 | Mathematical Operations and Algebraic Thinking

UNIT 6

# Factors and Multiples

» **Concept 1 :** Understanding Factors

» **Concept 2 :** Understanding Multiples



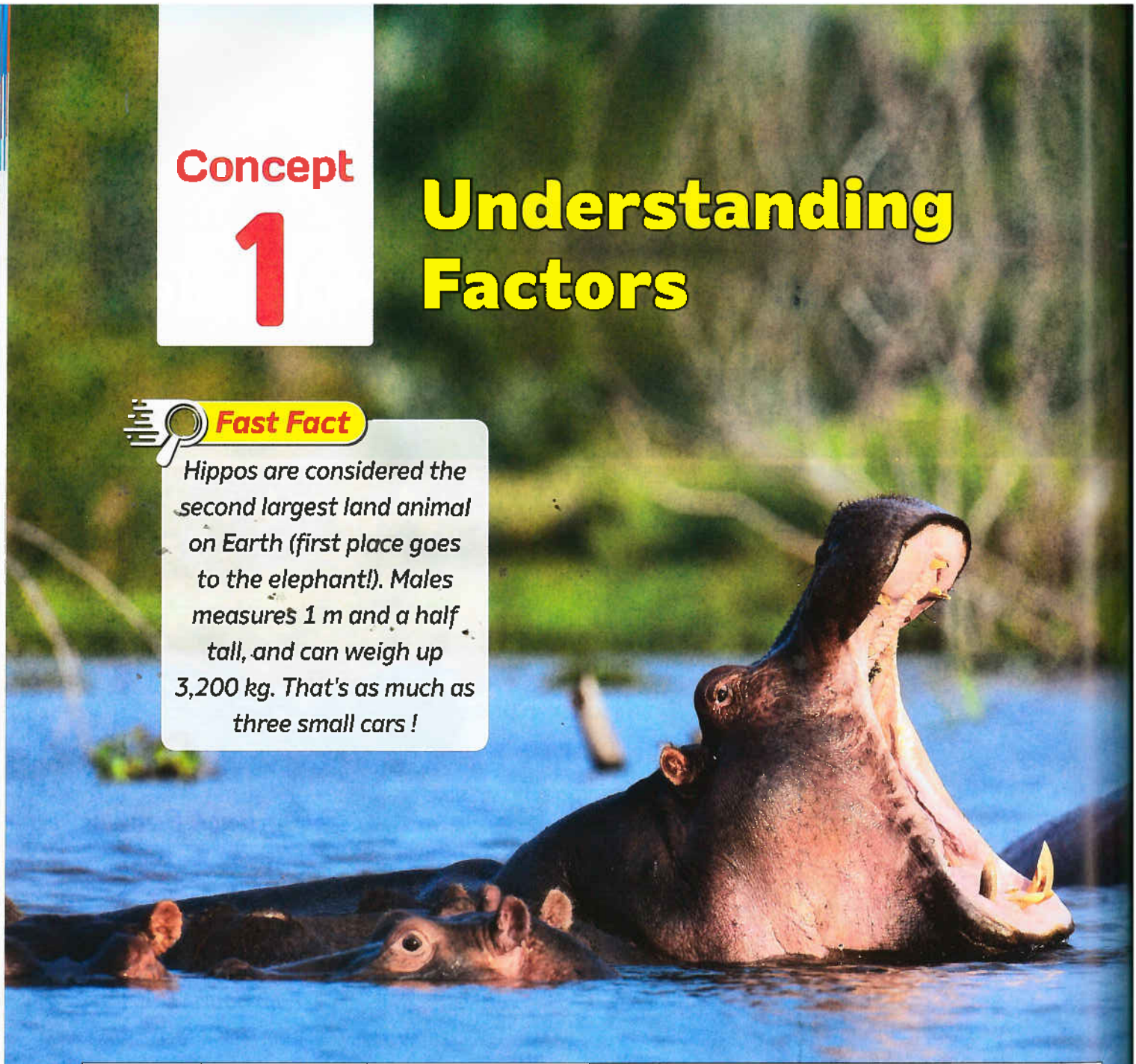
**Fast Fact**

*Pandas are BIG eaters - every day they fill their tummies for up to 12 hours, shifting up to 12 kilograms of bamboo ! About how many kilograms of bamboo does a panda eat in 2 days, 3 days, 4 days, and a week ?*

Concept

1

# Understanding Factors



**Fast Fact**

*Hippos are considered the second largest land animal on Earth (first place goes to the elephant!). Males measures 1 m and a half tall, and can weigh up 3,200 kg. That's as much as three small cars !*

| Lesson No. | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
| Lessons 1&2 | Identifying Factors of Whole Numbers | Factor – Factor pairs | • Students will define factors of a whole number.<br>• Students will find all factors of a given number between 0 and 100.<br>• Students will explain patterns they observe in numbers that have 2 , 5 or 10 as factors. |
| | Prime and Composite Numbers | Composite – Factors – Prime | • Students will find all factors of a given number between 0 and 100.<br>• Students will explain patterns they observe in numbers that have 3 , 6 or 9 as factors.<br>• Students will determine if a number is prime or composite. |
| Lesson 3 | Greatest Common Factor | Common factor – Factor – Greatest common factor (GCF) | • Students will find common factors between two whole numbers.<br>• Students will identify the greatest common factor between two whole numbers. |

Lessons
# 1&2

- **Identifying Factors of Whole Numbers**
- **Prime and Composite Numbers**




## Learn 1 Identify factors of whole numbers

- A factor is a number multiplied by another number to get a product.

▶ **Examples :**

$2 \times 9 = 18$

factor × factor = Product

$1 \times 7 = 7$

factor × factor = Product

- Many numbers can be broken into factors in different ways.

For Example :

$12 = 1 \times 12 = 2 \times 6 = 3 \times 4$

**So, the factors of 12 are 1 , 2 , 3 , 4 , 6 and 12. There are 6 factors or 3 factor pairs.**

**You can show the factors of 12 in many ways as :**

Factor tree




Factor rainbow




Factor T-chart

| | |
|---|---|
| 1 | 12 |
| 2 | 6 |
| 3 | 4 |

## Example 1

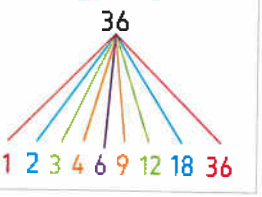
**Find all factors of 36. Show the factors on factor tree, factor rainbow , and factor T-chart.**

**Solution**

$36 = 1 \times 36 = 2 \times 18 = 3 \times 12 = 4 \times 9 = 6 \times 6$

**So, the factors of 36 are 1 , 2 , 3 , 4 , 6 , 9 , 12 , 18 and 36.**

Factor tree




Factor rainbow




Factor T-chart

| | |
|---|---|
| 1 | 36 |
| 2 | 18 |
| 3 | 12 |
| 4 | 9 |
| 6 | 6 |

**Notes for parents :**

- Let your child find the factors of 15.
- Help your child show the factors by factor tree, factor rainbow and factor T-chart.

## How can you find all the factors of a number?

**Helpfull Hint :**

| | | Examples |
|---|---|---|
| 1 | is a factor of any number. Every number will have a factor pair of 1 and itself. | |
| 2 → | is a factor, if the digit in the ones place is even [The ones digit is : 0, 2, 4, 6 or 8]. | 8 , 24 , 48 |
| 3 → | is a factor, if the sum of the digits is a number that exists when skip counting by 3s. | 9 , 18 , 24 |
| 4 → | is a factor, if the number is existing when skip counting by 4s. | 8 , 12 , 16 |
| 5 → | is a factor, if the ones digit is 0 or 5. | 5 , 15 , 20 |
| 6 → | is a factor, if the number is even and has a factor 3. | 12 , 18 , 24 |
| 9 → | is a factor, if the sum of the digits is a number that exists when skip counting by 9s. | 9 , 27 , 45 |
| 10 → | is a factor, if the ones digit is 0. | 20 , 50 , 100 |

## Example 2

**Answer the following questions.**

**a.** Is 3 a factor of 29 ? Explain how do you know.

**b.** Is 9 a factor of 54 ? Explain how do you know.

**c.** Is 6 a factor of 48 ? Explain how do you know.

## Solution

**a.** No, because 2 + 9 = 11 and 11 is a number does not exist when skip counting by 3s.

**b.** Yes, because 5 + 4 = 9 and 9 is a number existing when skip counting by 9s.

**c.** Yes, because 48 is even and 4 + 8 = 12 and 12 is a number existing when skip counting by 3s.

**Notes for parents :**

- Ask your child more questions of factors such as : Is 2 a factor of 14 ? Is 5 a factor of 61 ? and more questions, then let your child explain how did he/she know.

## Example 3

**Find all the factors of 48.**

### Solution

To find all the factors of a number, make an organized list of multiplication sentences. Write sentences until your factors start to repeat. [Ignore any sentences that won't work]. Then list the factors. **Find all the factors of 48.**

48 = 1 × 48 *[1 is a factor of every whole number]*

2 × 24 *[48 is even]*

3 × 16 *[4 + 8 = 12 and 12 is existing when skip counting by 3s.]*

4 × 12 *[48 is existing when skip counting by 4s.]*

~~5 ×~~

6 × 8 *[48 is even, and 3 is a factor]*

~~7 ×~~

8 × 6 *[← STOP! Repeat of 6 × 8].*

The factors of 48 are 1 , 2 , 3 , 4 , 6 , 8 , 12 , 16 , 24 and 48. There are 5 factor pairs.

### Check your understanding

1. **Find the factors of 15 and show the factors on factor tree, factor rainbow and factor T-chart.**

2. **Choose the correct answer.**

   a. 5 is a factor of _____
   A. 50 B. 51 C. 52 D. 53

   b. Which number is a factor of 20 ?
   A. 6 B. 10 C. 30 D. 40

   c. The number 11 has _____ factors.
   A. 2 B. 3 C. 4 D. 5

   d. The number 32 has _____ factors.
   A. 4 B. 6 C. 8 D. 10

   e. Which is the factor of every number ?
   A. 0 B. 1 C. 2 D. 10

• Ask your child to find all the factors of 72 by using the helpful hint to check all the factors.

## Learn 2 Prime and composite numbers

You can use the factors of a number to tell if it is a prime number or a composite number.

▶ A Prime number is a whole number that has exactly two different factors, 1 and itself.

▶ **Example :**

5 is an example of a prime number. It has only two different factors, 1 and 5.

$5 = 5 \times 1$

▶ **More examples of prime numbers**

17 , 29 , 31

| Number | Factors |
|---|---|
| 17 | 1 , 17 |
| 29 | 1 , 29 |
| 31 | 1 , 31 |

▶ A Composite number is a whole number greater than 1 that has more than two factors.

▶ **Example :**

6 is an example of a composite number. Its factors are 1 , 2 , 3 and 6.

$6 = 1 \times 6$

$6 = 2 \times 3$

▶ **More examples of composite numbers**

15 , 18 , 25

| Number | Factors |
|---|---|
| 15 | 1 , 3 , 5 , 15 |
| 18 | 1 , 2 , 3 , 6 , 9 , 18 |
| 25 | 1 , 5 , 25 |

### Remarks

- The number 1 is neither prime nor composite because it has only ONE factor.
- 2 is the smallest prime number.
- All prime numbers are odd numbers except 2.
- **The following table shows the prime numbers which lie between 1 and 100 :**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2 | 3 | 5 | 7 | 11 | 13 | 17 | 19 | 23 |
| 29 | 31 | 37 | 41 | 43 | 47 | 53 | 59 | 61 |
| | 67 | 71 | 73 | 79 | 83 | 89 | 97 | |

**Notes for parents :**

- Use the 100-chart to check the prime and the composite numbers and let your child identify how he/she knew the difference between them.

## Example 4

**Check each of the following numbers if it is a prime or a composite number.**

a. 9 b. 13 c. 19

## Solution

a. $9 = 1 \times 9$

$= 3 \times 3$

9 has more than two factors [1 , 3 , 9].

**So,** 9 is a composite number.

b. $13 = 1 \times 13$

13 has exactly two different factors [1 , 13].

**So,** 13 is a prime number.

c. $19 = 1 \times 19$

19 has exactly two different factors [1 , 19].

**So,** 19 is a prime number.

## Check your understanding

**Choose the correct answer.**

a. _____ is a prime number.
A. 9 B. 16 C. 19 D. 21

b. _____ is a prime number.
A. 1 B. 6 C. 7 D. 12

c. _____ isn't a prime number.
A. 1 B. 3 C. 5 D. 7

d. _____ is a composite number.
A. 1 B. 3 C. 13 D. 15

e. _____ isn't a composite number.
A. 11 B. 12 C. 14 D. 20

f. The smallest prime number is _____
A. 0 B. 1 C. 2 D. 3

g. The smallest odd prime number is _____
A. 0 B. 1 C. 2 D. 3

h. The prime number between 44 and 50 is _____
A. 45 B. 46 C. 47 D. 49

- Give your child a group of numbers and ask him/her to identify the prime numbers and the composite numbers.

# Exercise 26

on lessons 1&2

- Identifying Factors of Whole Numbers
- Prime and Composite Numbers

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

## First : Exercises on factors

**1.** Determine if the given number has 2 as a factor, 5 as a factor, or 10 as a factor. Circle yes or no.

| | Number | Is 2 a factor ? | | Is 5 a factor ? | | Is 10 a factor ? | |
|---|---|---|---|---|---|---|---|
| a. | 70 | Yes | No | Yes | No | Yes | No |
| b. | 15 | Yes | No | Yes | No | Yes | No |
| c. | 26 | Yes | No | Yes | No | Yes | No |
| d. | 17 | Yes | No | Yes | No | Yes | No |

**2.** Highlight or circle the factors of the numbers listed.

a. 15 : 2 5 10 b. 30 : 2 5 10

c. 12 : 2 5 10 d. 25 : 2 5 10

e. 36 : 2 5 10

f. 16 : 1 2 3 4 5 6 7 8 9 10

g. 20 : 1 2 3 4 5 6 7 8 9 10

h. 28 : 1 2 3 4 5 6 7 8 9 10

**3.** Complete with "is a factor of" or "is not a factor of" :

a. 7 _____ 14 b. 5 _____ 52

c. 2 _____ 100 d. 3 _____ 36

e. 6 _____ 96 f. 1 _____ 67

g. 4 _____ 88 h. 9 _____ 27

i. 19 _____ 19 j. 8 _____ 40

**4.** Answer the following problems.

a. Is 2 a factor of 23 ? How do you know ?

b. Is 5 a factor of 35 ? How do you know ?

c. Is 6 a factor of 84 ? How do you know ?

d. Is 3 a factor of 53 ? How do you know ?

e. Is 4 a factor of 32 ? How do you know ?

f. Is 7 a factor of 48 ? How do you know ?

g. 🕮 Is 9 a factor of 63 ? How do you know ?

**5. Complete the following.**

a. 8 = 1 × _____ = 2 × _____

The factors are : _____

b. 25 = 1 × _____ = 5 × _____

The factors are : _____

c. 20 = 1 × _____ = 2 × _____ = 4 × _____

The factors are : _____

d. 33 = 1 × _____ = 3 × _____

The factors are : _____

e. 42 = 1 × _____ = 2 × _____ = 3 × _____ = 6 × _____

The factors are : _____

f. 100 = 1 × _____ = 2 × _____ = 4 × _____ = 5 × _____ = 10 × _____

The factors are : _____

**6. Find all the factors of the following and create a factor tree, a factor rainbow and a factor T-chart.**

a. 🕮 20. There are 3 factor pairs.

Factors are : _____

| Factor tree | Factor rainbow | Factor T-chart |
|---|---|---|
| | | |

b. 🕮 40. There are 4 factor pairs.

Factors are : _____

| Factor tree | Factor rainbow | Factor T-chart |
|---|---|---|
| | | |

c. 📖 36. There are 5 factor pairs.

Factors are : _____

| Factor tree | Factor rainbow | Factor T-chart |
|---|---|---|
| | | |

**7.** **List all the factors of each number. You may create a factor tree, a factor rainbow or a factor T-chart.**

a. 14 _____

b. 📖 16 _____

c. 38 _____

d. 📖 25 _____

e. 54 _____

f. 21 _____

g. 📖 48 _____

h. 📖 19 _____

i. 13 _____

j. 35 _____

k. 49 _____

l. 64 _____

**8.** **Factor Riddles. Guess the number.**

a. The number is an even number between 1 and 10. Some of its factors include 1, 2 and 3. What number is it ?

b. 📖 The number is an even number between 20 and 30. Some of its factors include 1, 2, 4, 7 and 14. What number is it ?

c. 📖 The number is an even number greater than 40. It has 10 as a factor. It is less than 60. What number is it ?

d. The number is a two-digit number. It has 3 as a factor. Its tens digit is less than its ones digit. One of its factor pairs is 4 and 6. What number is it ?

e. 📖 The number is a two-digit number. It has 5 as a factor. Its tens digit is less than its ones digit. One of its factor pairs is 5 and 7. What number is it ?

## Second : Exercises on prime and composite numbers

**9.** **Complete with "Prime" or "Composite".**

a. 2 is _____ | b. 4 is _____ | c. 29 is _____ | d. 3 is _____

e. 5 is _____ | f. 6 is _____ | g. 7 is _____ | h. 11 is _____

i. 13 is _____ | j. 12 is _____ | k. 16 is _____ | l. 23 is _____

**10.** **Complete.**

a. _____ is the only even prime number.

b. The prime number has two different factors which are _____ and _____

c. The 2-digit prime number which is less than 13 is _____

d. The prime numbers between 60 and 70 are _____

e. The number 37 has _____ factors and it is a _____ number.

f. The number 15 is a _____ number because it has _____ factors.

**11.** **List all the factors of each number. Then, write if the number is prime or composite.**

a. 📖 14 _____ | b. 24 _____ (Alex. - West 22)

c. 📖 23 _____ | d. 37 _____

e. 📖 18 _____ | f. 32 _____

g. 📖 21 _____ | h. 45 _____

i. 📖 50 _____ | j. 📖 59 _____

k. 📖 22 _____ | l. 61 _____

m. 📖 31 _____ | n. 📖 46 _____

o. 📖 44 _____ | p. 📖 29 _____

**12. Prime Numbers less than 100.** Identify all of the prime numbers less than 100. Use skip counting and factor patterns to help you eliminate composite numbers.

1. Circle 2 and cross out all other numbers that you say when you skip count by 2s.
2. Circle 3 and cross out all other numbers that you say when you skip count by 3s.
3. Circle 5 and cross out all other numbers that you say when you skip count by 5s (some are already crossed out).
4. Circle 7 and cross out all other numbers that you say when you skip count by 7s.
5. Circle all numbers that remain except for 1.

When you are finished, the circled numbers are prime and the crossed out numbers are composite.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

**13. What's the Error.** Ashraf listed the first five prime numbers as 2 , 3 , 7 , 11 and 13. Describe his error. Write the correct answer.

## Challenge

**14.** Write all prime numbers which are between 46 and 62

**15.** Write all composite numbers which are between 5 and 23

# Multiple Choice Questions

Choose the correct answer.

**1.** All the factors of 16 are _____ [Suez 22]

A. 1, 16 B. 2, 4, 8

C. 1, 2, 4, 8, 16 D. 1, 2, 4, 6, 8, 16

**2.** All the factors of _____ are 1, 2, 3, 6, 9 and 18.

A. 9 B. 18 C. 36 D. 54

**3.** 4 is a factor of _____

A. 37 B. 38

C. 39 D. 40

**4.** _____ is a factor of 63. [Ismailia 22]

A. 2 B. 5

C. 7 D. 11

**5.** Which of the following is a factor of 10 ?

A. 30 B. 20 C. 15 D. 5

**6.** The factor pair 3 and 8 is for the number _____

A. 6 B. 11 C. 12 D. 24

**7.** The factor pair _____ is for the number 21.

A. 2 and 10 B. 2 and 1

C. 3 and 7 D. 5 and 4

**8.** 23 has _____ factor pair.

A. 1 B. 2

C. 3 D. 4

**9.** 18 has _____ factors.

A. 2 B. 4 C. 6 D. 8

**10.** The prime number has _____ factors only. [El-Dakahlia 22]

A. 0 B. 2 C. 1 D. 4

**11.** Which of the following is a prime number ? [Sharkia - Abo Kebeer 22]

A. 1 B. 11 C. 14 D. 50

**12.** Which of the following is a composite number ?

A. 1 B. 31 C. 33 D. 43

**13.** Which of the following is NOT a prime number ? _____

A. 2 B. 5 C. 7 D. 9

**14.** All the following numbers are composite except _____

A. 66 B. 67 C. 68 D. 69

**15.** Which statement is true ?

A. 1 is a factor of only odd numbers.

B. 1 is a not a factor of any number.

C. 1 is a factor of every number.

D. 1 is a factor of only 0.

Lesson 3

# Greatest Common Factor

## Learn How can you find the greatest common factors for two numbers ?



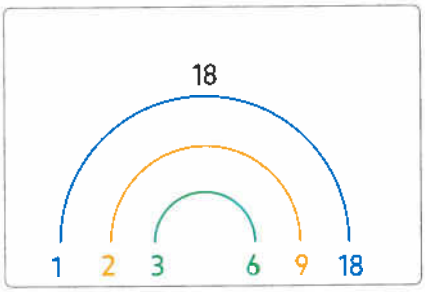

- Common factors of two numbers are factors that are the same.
- The greatest common factor [GCF] of two numbers is the greatest number that is a factor of both.

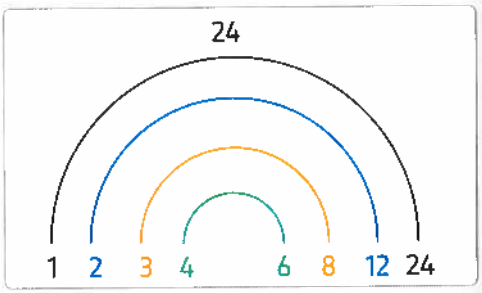
**How can you find the greatest common factor [GCF] between two numbers or more ?**

1. Identify the factors of each number.
2. Find the common factors for these numbers.
3. Determine the greatest common factor [GCF].

For Example :

**How can you find the greatest common factor for 18 and 24 ?**




- **Factors of 18 :** 1 , 2 , 3 , 6 , 9 , 18
- **Factors of 24 :** 1 , 2 , 3 , 4 , 6 , 8 , 12 , 24
- **Common factors :** 1 , 2 , 3 , 6
- **The greatest common factor [GCF] :** 6

## Example 1

**Find all the common factors and GCF of each pair.**

a. 12 and 15 b. 16 and 28 c. 7 and 11

### Solution

a. 12 : 1 , 2 , 3 , 4 , 6 , 12

15 : 1 , 3 , 5 , 15

Common factors : 1 , 3

GCF : 3

| Factors of 12 | |
|---|---|
| 1 | 12 |
| 2 | 6 |
| 3 | 4 |

| Factors of 15 | |
|---|---|
| 1 | 15 |
| 3 | 5 |

**Notes for parents :**

- Tell your child that common factors and greatest common factors are helpful to solve many problems in life.

b. 16 : 1 , 2 , 4 , 8 , 16

28 : 1 , 2 , 4 , 7 , 14 , 28

Common factors : 1 , 2 , 4

GCF : 4

| Factors of 16 | | Factors of 28 | |
|---|---|---|---|
| 1 | 16 | 1 | 28 |
| 2 | 8 | 2 | 14 |
| 4 | 4 | 4 | 7 |

c. 7 : 1 , 7

11 : 1 , 11

Common factor : 1

GCF : 1

*Note that :*

- *1 is the common factor of all whole numbers.*
- *All prime numbers has one common factor that is 1. Such as 7 and 11.*

## Example 2

For a dinner party, Adam is creating individual servings. He has 28 pieces of fruit and 14 yogurt cups. If he wants each serving to be identical with no food left over, what is the greatest number of servings Adam can create ? How many pieces of fruit and how many yogurt cups will be in each serving ?

### Solution

Factors of 28 : 1 , 2 , 4 , 7 , 14 , 28

Factors of 14 : 1 , 2 , 7 , 14

Common factors : 1 , 2 , 7 , 14

GCF : 14

The greatest number of individual servings is 14 of 2 pieces of fruit and one yogurt cup in each individual serving.

### Check your understanding

**Find all the common factors and GCF of each pair.**

**a.** 9 and 12

**b.** 25 and 15

- Give your child two numbers and let him/her find the common factors and the GCF of them such as (5 and 17) , (4 and 12).

Exercise 27

on lesson 3

# Greatest Common Factor

REMEMBER UNDERSTAND APPLY PROBLEM SOLVING From the school book

**1.** List the factors of each number. Highlight or circle the common factors of each pair of numbers.

**a.** 16 and 20

Factors of 16 : _____

Factors of 20 : _____

**b.** 18 and 4

Factors of 18 : _____

Factors of 4 : _____

**c.** 20 and 30

Factors of 20 : _____

Factors of 30 : _____

**d.** 17 and 22

Factors of 17 : _____

Factors of 22 : _____

**e.** 21 and 35

Factors of 21 : _____

Factors of 35 : _____

**f.** 36 and 42

Factors of 36 : _____

Factors of 42 : _____

**2.** List the common factors of the given numbers.

a. 4 and 12

b. 10 and 35

c. 17 and 34

d. 18 and 24

e. 25 and 30

f. 22 and 44

**3.** Find the common factors and the greatest common factor (GCF) of :

a. 4 and 6

Factors of 4 :

Factors of 6 :

Common factors : GCF :

b. 10 and 30

Factors of 10 :

Factors of 30 :

Common factors : GCF :

c. 12 and 18 [Sharkia 22]

Factors of 12 :

Factors of 18 :

Common factors : GCF :

d. 54 and 18

Factors of 54 :

Factors of 18 :

Common factors : GCF :

**4.** **Find the GCF of the given numbers.**

○

**a.** 30 and 45 [Ismailia 22]

**b.** 📖 12 and 18

**c.** 📖 40 and 50

**d.** 📖 10 and 45

**e.** 📖 10 and 24

**f.** 35 and 25 [Monofia - Shebin El-Koum 22]

**g.** 📖 40 and 48

**h.** 📖 33 and 11

**5.** **Use what you know about factors and common factors to solve each problem.**

**a.** Sylvia has 21 pencils and 14 erasers. She wants to put them in groups. What is the greatest number of groups that can be made so that each group has the same number of items ? How many pencils will be in each group ? How many erasers will be in each group ?

**b.** There are 40 girls and 32 boys who want to participate in lap on teams. If each team must have the same number of girls and the same number of boys, what is the greatest number of teams that can participate ? How many girls will be in each team ? How many boys will be in each team ?

c. 🕮 A class is going on a field trip. There are 36 girls and 27 boys in the class. Students will be divided into groups of girls and boys. What is the greatest number of groups that can be made so that each group has the same number of children ? How many children will be in each group of boys ? How many children will be in each group of girls ?

d. 🕮 Mohab is making flower arrangements. He has 7 roses and 14 daisies. If Mohab wants to make all the arrangements identical and have no flowers left over, what is the greatest number of flower arrangements that he can make ? How many roses and how many daisies will be in each flower arrangement ?

e. Eslam has 60 blue marbles and 24 red marbles. If he wants to place them in identical groups without any marbles left over, what is the greatest number of groups Eslam can make? How many blue marbles and how many red marbles will be in each group ?

f. 🕮 Amira and her friends are going on a picnic. Amira wants to make snack packs of apples and candy to take on the picnic. She has 24 apples and 36 small bags of candy. What is the greatest number of snack packs Amira can make if each pack must have exactly the same number of apples and exactly the same number of bags of candy with no snacks left over ? How many apples will be in each snack pack ? How many bags of candy will be in each snack pack ?

## Challenge

6. Find the GCF of 15 , 18 and 21.

# Multiple Choice Questions

Choose the correct answer.

**1.** Which of the following are the common factors of 4 and 6 ?

A. 1 and 2 B. 1 and 3
C. 2 and 3 D. 3 and 4

**2.** Which of the following are the common factors of 15 and 25 ?

A. 1 and 3 B. 1 and 5
C. 1 and 15 D. 1 and 25

**3.** Which number is the greatest common factor [GCF] of 12 and 6 ?

[El-Beheira - Kafr El-Dawwar 22]

A. 2 B. 3
C. 6 D. 12

**4.** Which number is the greatest common factor of 45 and 60 ?

[Damietta 22]

A. 5 B. 20
C. 15 D. 30

**5.** The GCF of 18 and 27 is ——

A. 1 B. 3
C. 6 D. 9

**6.** The GCF of 20 and 30 is ——

A. 1 B. 4
C. 5 D. 10

**7.** The common factor of all numbers is ——

A. 0 B. 1
C. 2 D. 3

**8.** 1 and 7 are the common factors of ——

A. 2 and 7 B. 2 and 14
C. 7 and 12 D. 7 and 14

**9.** Which two numbers are common factors of 48 and 54 ?

A. 2 B. 6
C. 8 D. 9
E. 12 F. 24

**10.** Which two numbers are common factors of 27 and 63 ?

A. 2 B. 3
C. 4 D. 7
E. 9 F. 11

**11.** Which pair of numbers has the same greatest common factor as 42 and 12 ?

A. 9 and 6 B. 8 and 24 C. 16 and 60 D. 18 and 30

# Concept 2

# Understanding Multiples



**Fast Fact**

*Believe it or not, Koalas can sleep up to 18 hours a day!*
*How many hours do they sleep per week?*

| Lesson No. | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
| Lessons 4&5 | Identifying Multiples of Whole Numbers | Multiples- Skip count | • Students will define multiples of whole numbers.<br>• Students will identify multiples of whole numbers. |
| | Common Multiples | Review vocabulary as needed. | • Students will identify common multiples between two numbers. |
| Lesson 6 | Relationships between Factors and Multiples | Common multiple-Factor-Multiples-Product. | • Students will explain the relationship between factors and multiples.<br>• Students will determine if a number is a factor or a multiple of another number. |

Lessons
# 4&5

- Identifying Multiples of Whole Numbers
- Common Multiples




## Learn 1 Multiples of whole numbers

### What is a multiple ?

**A multiple is the product of a given number and another whole number.**

- You can find multiples of any number using any of these ways :

1. Multiplying by the whole numbers.
2. Skip-counting on the number line.
3. Skip-counting using 100 Chart.



For Example :

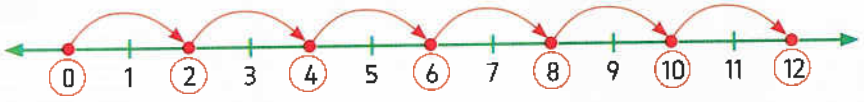
To find the multiples of 2, use any of these ways:

**1 Multiply by 0, 1, 2, 3, 4 and so on.**

$2 \times 0 = 0$, $2 \times 1 = 2$, $2 \times 2 = 4$, $2 \times 3 = 6$, $2 \times 4 = 8$, and so on.

Then the products 0, 2, 4, 6, 8, ... are called the multiples of 2

**2 Using skip-counting by 2s on the number line.**




Then the multiples of 2 are 0, 2, 4, 6, 8, 10, 12 and so on.

**3 Use skip-counting by 2s using 100 Chart.**

Then the multiples of 2 [except zero] are

2 , 4 , 6 , 8 , 10 , 12 and so on.

Start

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

**Notes for parents :**

- Skip counting on the number chart helps your child notice the patterns to help him/her find the multiples more quickly.

## Remarks



- Zero is a multiple for any number.
- The multiple of any number not equal to 0 is divisible by this number.

For Example :

$2 \times 5 = 10$ → 10 is a multiple of both 2 and 5

10 is divisible by 2

10 is divisible by 5

## Example 1

**Find the multiples of.**



**a.** 4 **b.** 10

### Solution

**a.** $4 \times 0 = 0$

$4 \times 1 = 4$

$4 \times 2 = 8$

$4 \times 3 = 12$

and so on.

Then :

The multiples of 4 are :

0, 4, 8, 12, ... and so on.

**b.** $10 \times 0 = 0$

$10 \times 1 = 10$

$10 \times 2 = 20$

$10 \times 3 = 30$

and so on.

Then :

The multiples of 10 are :

0, 10, 20, 30, ... and so on.

## Check your understanding

**a.** List 4 multiples of 8.

**b.** Circle the numbers that are multiples of 3.

12 , 17 , 6 , 22 , 18 , 27

• Explain that the number of multiples that a number has is endless.

## Learn 2 Common Multiples

A common multiple is a multiple of two or more numbers.

### Finding common multiples using number chart

Look at the column that starts with 2.
All the numbers in this column are multiples of 2.

- List the multiples of 2 on the table.

0 , 2 , 4 , 6 , 8 , 10 , 12 , 14 , 16 , 18 , ...

Look at the column that starts with 3.
All the numbers in this column are multiples of 3.

- List the multiples of 3 on the table.

0 , 3 , 6 , 9 , 12 , 15 , 18 , 21 , 24 , ...

These numbers that are on both lists are common multiples of 2 and 3.

- List the common multiples of 2 and 3.

0 , 6 , 12 , 18 , ...

| × | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 2 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| 3 | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| 4 | 0 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 48 |
| 5 | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| 6 | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 | 66 | 72 |
| 7 | 0 | 7 | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63 | 70 | 77 | 84 |
| 8 | 0 | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 | 88 | 96 |
| 9 | 0 | 9 | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 | 90 | 99 | 108 |
| 10 | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 |
| 11 | 0 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | 88 | 99 | 110 | 121 | 132 |
| 12 | 0 | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 |

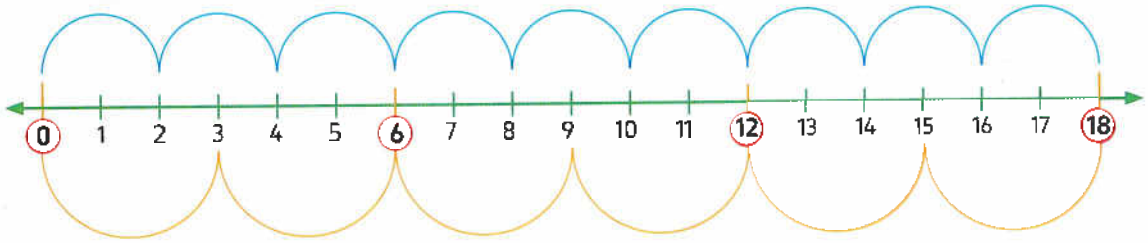
### Finding common multiples using number line



- You can use a number line to find common multiples.

**Example :**

Use a number line to find common multiples of 2 and 3




The common multiples of 2 and 3 are
0 , 6 , 12 , 18 ,... and so on.

**Remark**

Zero is a common multiple for any numbers.

**Notes for parents :**

- Ask your child use a number chart to find multiples of a number, ask him/her to use it to find the common multiples of two numbers.

## Example 2

**Find the multiples of each of the numbers 4 and 6 up to 50, then find the common multiples between them.**

### Solution

- The multiples of 4 are : (0) , 4 , 8 , (12) , 16 , 20 , (24) , 28 , 32 , (36) , 40 , 44 , (48)
- The multiples of 6 are : (0) , 6 , (12) , 18 , (24) , 30 , (36) , 42 , (48)
- The common multiples of 4 and 6 are : 0 , 12 , 24 , 36 , 48

### Check your understanding

**Find the multiples of each of 7 and 3 up to 50, then find the common multiples between them.**

### Solution

The multiples of 7 are _____

The multiples of 3 are _____

The common multiples are _____



- Listing multiples help your child find common multiples.

# Exercise 28

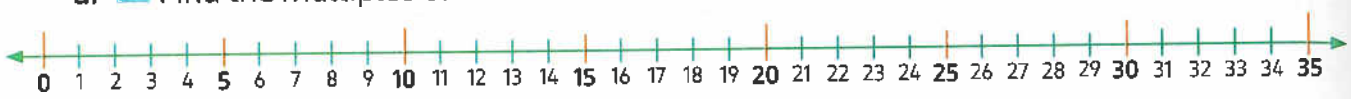
on lessons 4&5

## • Identifying Multiples of Whole Numbers
## • Common Multiples

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

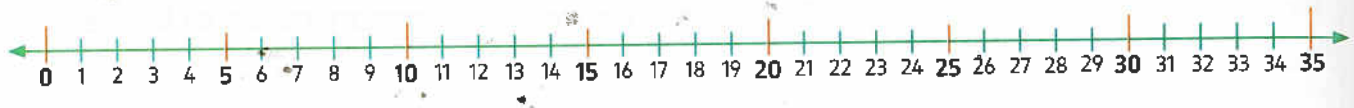
**1.** Skip counting on a number line. Draw a line connecting each number to show skip counting on the number line. Start at 0 each time.

a. Find the multiples of 2




The multiples of 2 are _____

b. Find the multiples of 5




The multiples of 5 are _____

**2.** Color the multiples. Use the hundreds chart.

a. Color the multiples of 9

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

The multiples of 9 are : _____

b. Color the multiples of 10

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

The multiples of 10 are : _____

**3.** a. Circle the numbers that are multiples of 6

7 , 16 , 12 , 6 , 21 , 24 , 18

b. Circle the numbers that are multiples of 3

6 , 17 , 21 , 15 , 10 , 36 , 29

c. Circle the numbers that are multiples of 8

6 , 8 , 10 , 16 , 18 , 24 , 30 , 32 , 36

d. Which of the following is NOT a multiple of 4 ?

4 , 30 , 20 , 44 , 36

e. Which of the following is NOT a multiple of 5 ?

5 , 31 , 35 , 40 , 15 , 10 , 16

**4.** a. List 5 multiples of 7.

b. List 5 multiples of 8.

c. List the multiples of 3 up to 20.

d. List the multiples of 5 up to 30.

e. List the multiples of 9 up to 60.

**5.** Put (✓) to the correct statement and (✗) to the incorrect statement.

a. 34 is a multiple of 9. [ ]

b. 35 is a multiple of 4. [ ]

c. 7 is a multiple of 7. [ ]

d. 40 is a multiple of 8. [ ]

e. 30 is a multiple of 2. [ ]

f. 81 is a multiple of 9. [ ]

g. The common multiple for all numbers is one. [Cairo - El-Tebbeen 22] [ ]

**6.** Find the missing multiple.

a. 5 , 10 , 15 , ☐

b. 8 , 16 , 24 , ☐

c. 10 , 20 , ☐ , 40

d. 70 , 80 , ☐ , 100

e. 12 , 15 , ☐ , 21

f. 22 , ☐ , 44 , 55

g. 36 , ☐ , 54 , 63

h. ☐ , 14 , 21 , 28

i. ☐ , 24 , 30 , 36

**7.** a. **Find the multiples of each of the numbers 2 and 3 up to 20, then find the common multiples between them.**

The multiples of 2 are :

The multiples of 3 are :

The common multiples are :

# Multiple Choice Questions

Choose the correct answer.

**1.** _____ is a multiple of 3.

A. 4 B. 12
C. 14 D. 20

**2.** Which of the following is a multiple of 9 ?

A. 3 B. 45
C. 56 D. 89

**3.** 20 is a multiple of _____

A. 3 B. 6
C. 8 D. 10

**4.** Which is a common multiple of 5 and 8 ?

A. 20 B. 40
C. 35 D. 45

**5.** Which is a common multiple of 10 and 20 ?

A. 10 B. 15
C. 20 D. 25

**6.** Which is NOT a common multiple of 9 and 6 ? [Cairo - Khalifa and Mokattam 22]

A. 18 B. 27
C. 36 D. 42

**7.** Which is NOT a multiple of 7 ? [Luxor 22]

A. 42 B. 63
C. 707 D. 27

**8.** The common multiple for all numbers is _____

A. 0 B. 1
C. 2 D. 4

**9.** The common multiples of 6 and 8 are the same as the multiples of which number ?

A. 8 B. 12 C. 20 D. 48

**10.** Which list shows common multiples of 6 and 8 ?

A. 6 , 8 , 24 B. 60 , 80 , 100 C. 24 , 48 , 72 D. 36 , 64 , 80

Lesson 6

# Relationships between Factors and Multiples

## Learn What is the relation between factors and multiples ?

You can use multplication to find the relation between factors and multiples.

For Example :

$1 \times 6 = 6$

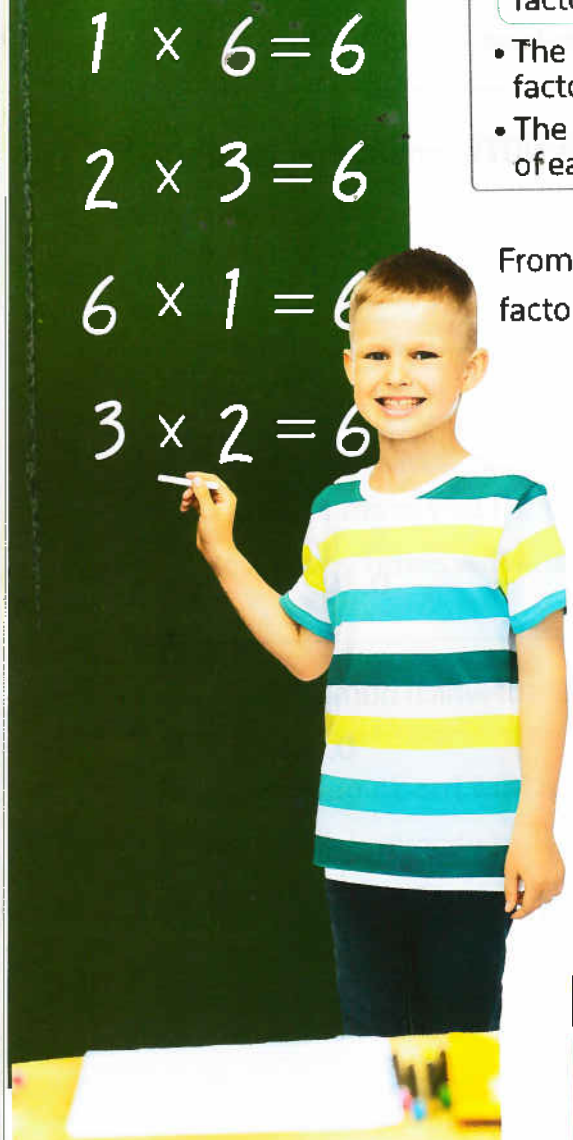
factor factor multiple

- The numbers 1 and 6 are factors of 6
- The number 6 is a multiple of each of 1 and 6

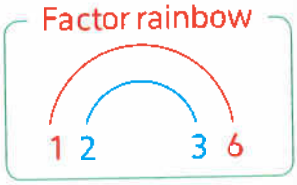
$2 \times 3 = 6$

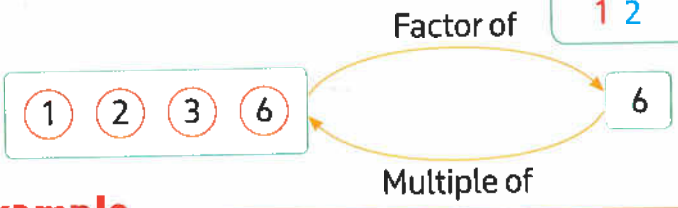
factor factor multiple

- The numbers 2 and 3 are factors of 6
- The number 6 is a multiple of each of 2 and 3




From above and the opposite factor rainbow you can say that :




### Example

**Making connection. Think about the relationships between the numbers 2 , 4 and 16. Write at least two sentences describing what you notice.**

### Solution

Answers may vary

- 2 , 4 and 16 are multiples of 2.
- 2 , 4 , 16 are factors of 16.
- 16 is a multiple of 2 , 4 and 16.




### Check your understanding

**Complete.**

a. $3 \times 8 = 24$ , then 3 and 8 are _____ of 24 and 24 is _____ of each of 3 and 8.

b. An even number is a multiple 3 and 4. It lies between 30 and 40 , then this number is _____

**Notes for parents :**

- Help your child use a multiplication table to recognize the relation between factors and multiples.
- Ask your child to explain the difference between a factor and a multiple.

Exercise 29

on lesson 6

# Relationships between Factors and Multiples

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** **Complete the following.**

a. Write 3 multiples of 5 _____ , _____ , _____

b. Write 3 multiples of 6 _____ , _____ , _____

c. Write 3 factors of 30 _____ , _____ , _____

d. The numbers 1 , 3 , 9 , 27 are factors of _____ [El-Beheira - Kafr El-Dawwar 22]

e. If 4 × 9 = 36, then _____ is a multiple of the two numbers _____ and _____
Also, _____ and _____ are factors of the number _____

f. If 7 × 3 = _____ , then _____ is a multiple of the two numbers _____ and _____

**2.** **Write (✓) to the correct statement or (✗) to the incorrect statement.**

a. 3 is a factor of 12. [Cairo - El-Kobba 22] [ ]

b. 8 is a multiple of 4. [ ]

c. 12 is a multiple of 3 and 6. [ ]

d. The factores of 18 are 1 , 2 , 3 , 9 and 18 only [Luxor 22] [ ]

e. 45 is an even number that is a multiple of 5 and 9. [ ]

f. 27 is an odd number that is a multiple of 3 and 8. [ ]

**3.** **Answer the following questions.**

a. Is 2 a factor of 12 ? _____

b. Is 6 a factor of 24 ? _____

c. Is 14 a multiple of 7 ? _____

d. Is 10 a multiple of 2 ? _____

e. Is 24 a factor of 8 ? _____

f. Is 2 a multiple of 4 ? _____

g. Is 0 a multiple of 9 ? _____

h. Is 16 a multiple of 3 ? _____

i. Is 5 a factor of 25 or a multiple of 25 ? _____

j. Is 32 a factor of 8 or a multiple of 8 ? _____

k. Is 1 a factor of 9 or a multiple of 9 ? _____

l. What multiple of 7 is a factor of 7 ? _____

**4. Making connections. Think about the relationships between the numbers in each group. Write at least two sentences describing what you notice.**

a. 3 , 6 and 12 _____

b. 4 , 8 , 16 and 24 _____

c. 2 , 4 , 3 , 12 _____

**5. Multiples Riddles. Read each riddle and solve. There may be more than one answer.**

a. The number is an odd number. It is a multiple of 3 and 5. It is greater than 20. What number is it ?

b. The number is an even number. It is a multiple of 4 and 8. It is between 10 and 20. What number is it ?

c. The number is an even number. It is a multiple of 3 , 4 and 6. What number is it ?

d. An even number between 20 and 30. Some of its factors include 1 , 2 , 4 , 7 and 14. What is it ?

[Suez 22]

## Challenge

6. There is a number between 10 and 20 and it is a multiple of the number 4 and a factor of the number 24. What is this number ?

# Multiple Choice Questions

Choose the correct answer.

**1.** _____ is a factor of 6.

A. 2 B. 12
C. 18 D. 24

**2.** _____ is a multiple of 12.

A. 3 B. 4
C. 6 D. 12

**3.** _____ is a multiple of 8.

A. 2 B. 4
C. 10 D. 16

**4.** _____ is an even number that is a multiple of 2 , 4 , 5.

A. 10 B. 8 C. 15 D. 20

**5.** _____ is an odd number that is a multiple of 3 and 7.

A. 7 B. 14 C. 21 D. 42

**6.** Multiples of 2 are _____ numbers.

A. even B. odd C. prime

**7.** Which of the following is true ?

A. 5 is a multiple of 10 B. 10 is a factor of 5
C. 5 is a factor of 10 D. 6 is a multiple of 4

**8.** Which of the following is false ?

A. 282 is a multiple of 2 B. 0 is a multiple of 7
C. 3 is a factor of 24 D. 8 is a factor of 14

**9.** Tell whether the first number is a multiple of the second.

A. 4 , 8 B. 2 , 20 C. 18 , 9 D. 14 , 7

**10.** Which statement is true about multiples of whole numbers ?

A. The number 4 is a multiple of 12 because the numbers 3 and 4 are a factor pair for 12.
B. The number 18 is a multiple of 2 because the numbers 2 and 9 are a factor pair for 18.
C. The number 6 is a multiple of 6 because the numbers 0 and 6 are a factor pair for 6.
D. The number 15 is a multiple of 5 because the numbers 5 and 10 are a factor pair for 15.

# Unit Six Assessment




**1.** **Write (✓) to the correct statement or (✗) to the incorrect statement.**

a. 3 is a factor of 12. [Cairo - El-Kobba 22] [ ]

b. The prime number 5 has factors of sum 6. [Alexandria - West 22] [ ]

c. Any number that ends in 0 has a factor of 2 , 5 and 10. [Aswan - Kom Ombo 22] [ ]

d. The GCF of 20 and 30 is 4. [Cairo - Khalifa and Mokattem 22] [ ]

e. The common factor of all numbers is 1. [El-Monofia – Quesna 22] [ ]

f. 13 is a composite number. [ ]

**2.** **Choose the correct answer.**

a. Which number is a multiple of 9 ?

A. 1 B. 3 C. 27 D. 30

b. The number _____ has the factors 1 , 2 , 4 , 5 , 10 , 20.

A. 10 B. 16 C. 20 D. 30

c. Which is NOT a common multiple of 3 and 5 ?

A. 15 B. 30 C. 40 D. 45

d. _____ is NOT a prime number.

A. 1 B. 2 C. 7 D. 11

e. _____ is a common multiple for any numbers.

A. 0 B. 1 C. 2 D. 3

f. The number 36 has _____ factors.

A. 3 B. 5 C. 8 D. 9

**3.** **Complete.**

a. The number of factors of a prime number is _____ [El-Menia – Samlout 22]

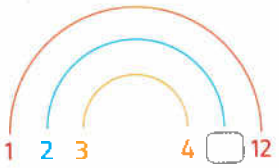
b. The only even prime number is _____ [Sharkia 22]

c. The GCF of 4 and 8 is _____

d. The smallest odd prime number is _____ [El- Beheira – Kafr El-Dawwar]

e. A number that has only two factors and their sum of 8 is _____ [Aswan - Kom Ombo 22]

f. The missing factor in the opposite factor rainbow is _____ [Luxor 22]



**4.** Match.

| | | | |
|---|---|---|---|
| a. | A factor of 20 | 1. | 32 |
| b. | The GCF for 24 and 30 | 2. | 10 |
| c. | A multiple of 8 | 3. | 19 |
| d. | A prime number | 4. | 6 |

**5.** Find all factors of 30 and create a factor tree, a factor rainbow and T-chart.

**6.** Find the multiples of each of the numbers 8 and 12 up to 40, then find the common multiples between them.

**7.** Find the common factors and the greatest common factor (GCF) of 24 and 40.

**8.** Think about the relationship between the numbers 2 , 3 , 4 , 12
(Write at least two sentences)

**9.** In each of the following numbers underline the prime numbers and circle the composite numbers.

7 – 8 – 10 – 13 – 21 – 1 – 14

2 – 18 – 15 – 17 – 3 – 4 – 20

**10.** The number is an even number greater than 20. It has 8 as a factor and is less than 30. What number is it ?

**11.** List 5 multiples of 6.

**12.** Is one a prime number ? Why ?

UNIT 7

# Multiplication and Division : Computation and Relationships

» **Concept 1 :** Multiplying by 1-Digit and 2-Digit Factors

» **Concept 2 :** Dividing by 1-Digit Divisors



**Fast Fact**

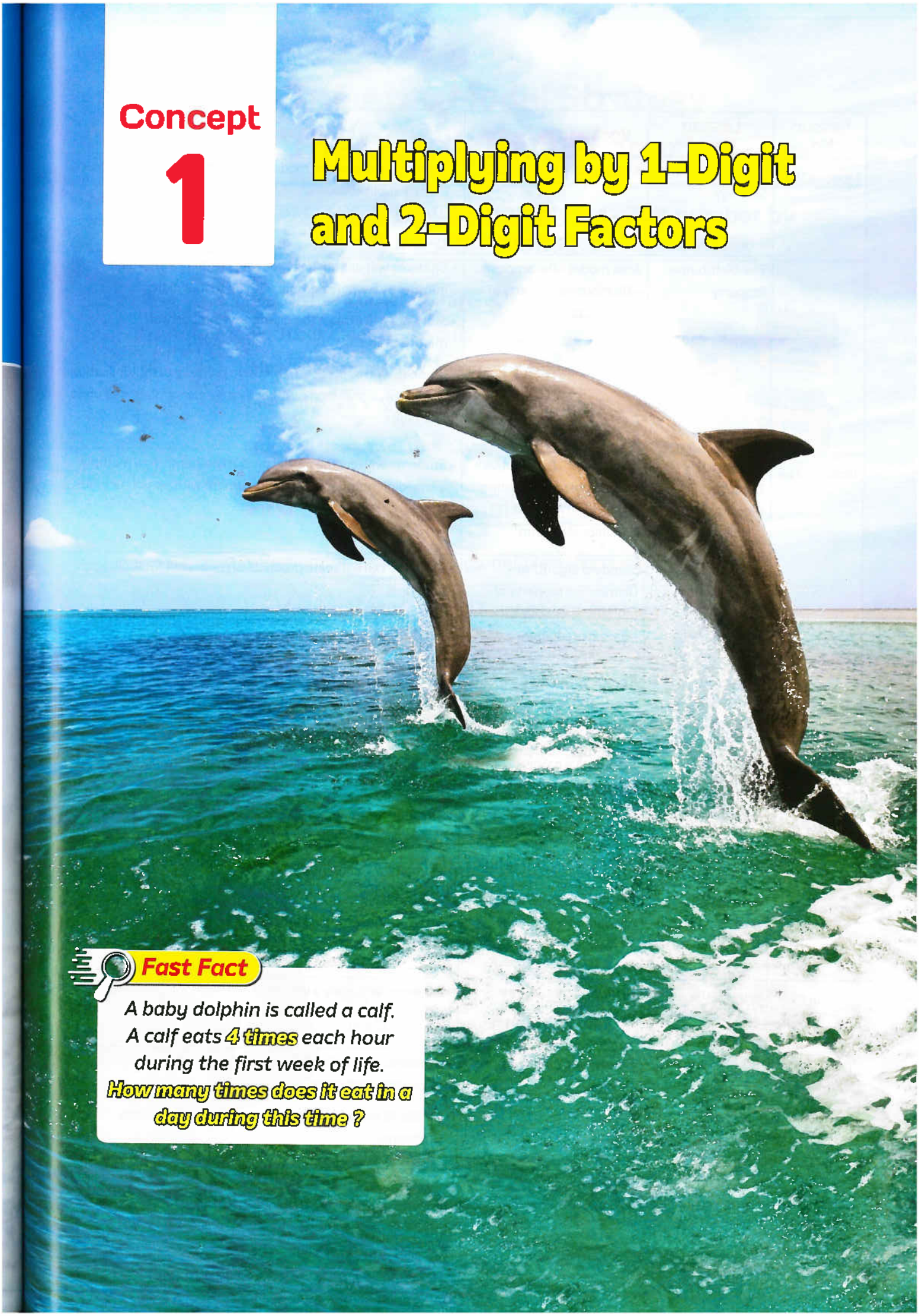
*The emperor penguin is the world's largest penguin. It can weigh up to 40 kg. In the Antarctic, an adult male emperor penguin will keep a single egg warm for about 63 days until the egg hatches.*

***About how many weeks will the penguin keep the egg warm ?***

Concept

1

# Multiplying by 1-Digit and 2-Digit Factors



**Fast Fact**

*A baby dolphin is called a calf. A calf eats* ***4 times*** *each hour during the first week of life.*

***How many times does it eat in a day during this time ?***

| Lesson No. | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
| Lessons 1&2 | The Area Model Strategy | Area model - Decompose | • Students will use area models to represent two-digit by one-digit multiplication.<br>• Students will explain how they use place value to multiply. |
| | The Distributive Property | Area model - Decompose - Distributive property of multiplication | • Students will use an area model to multiply a one-digit number by a whole number with up to four digits.<br>• Students will explain the distributive property of multiplication.<br>• Students will apply the distributive property of multiplication to multiply a one-digit number by a whole number with up to four digits. |
| Lessons 3&4 | The Partial Products Algorithm | Area model - Distributive property of multiplication - Algorithm - Partial products algorithm | • Students will use the partial products algorithm to multiply a one-digit number by a whole number with up to four digits. |
| | The Standard Multiplication Algorithm | Standard algorithm - Distributive property of multiplication - Area model - Partial products | • Students will estimate products of multi digit multiplication problems.<br>• Students will use the standard algorithm to multiply a one-digit number by a whole number with up to four digits. |
| Lesson 5 | Review Connecting Strategies | Review vocabulary as needed | • Students will use the standard algorithm to multiply a one-digit number by a whole number with up to four digits. |
| Lessons 6&7 | Two-Digit Multiplication | Distributive property of multiplication | • Students will identify patterns when multiplying two multiples of 10.<br>• Students will multiply a two-digit number by a multiple of 10.<br>• Students will assess the reasonableness of an answer using estimation and mental math. |
| | Area Models and Two-Digit Multiplication | Review vocabulary as needed | • Students will be able to use the area model to solve two-digit by two-digit multiplication problems. |
| Lesson 8 | Algorithms and Two-Digit Multiplication | Review vocabulary as needed. | • Students will apply a variety of strategies to solve two-digit by two-digit multiplication problems. |
| Lesson 9 | Putting It All Together | Review vocabulary as needed | • Students will apply the three reads strategy to analyze and solve story problems.<br>• Students will add, subtract, or multiply to solve story problems. |

Lessons
# 1&2

# • The Area Model Strategy
# • The Distributive Property

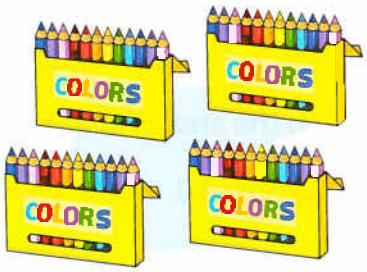
## Learn How to multiply a 1-digit number by a 2-digit number ?

Mazen has 4 boxes of crayons.

Each box holds 12 crayons.

**How many crayons does Mazen have in all ?**

**Multiply :** $4 \times 12$

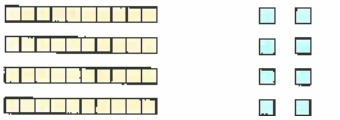



You can use any of these ways to multiply.

## First : Model 2-digit multiplication

• Remember that you can model 12 as 

• Model the problem $4 \times 12$ using **base-ten blocks.**



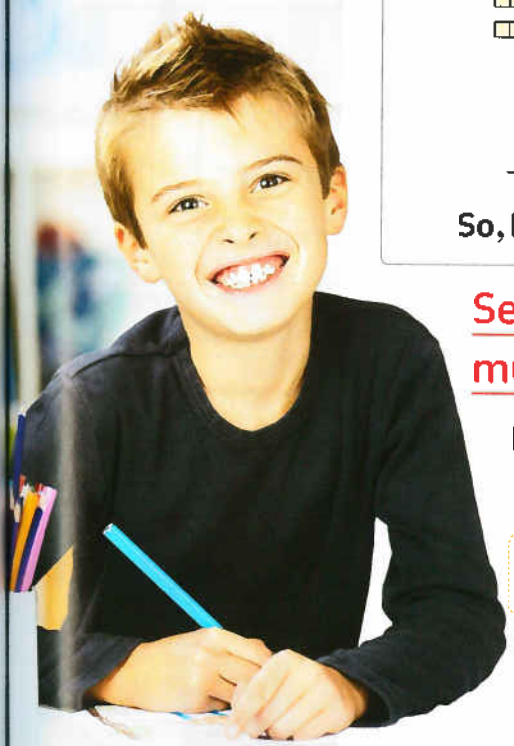
4 tens , 8 ones

40 8

Then, $4 \times 12 = 40 + 8 = 48$

**So,** Mazen has 48 crayons in all.





## Second : Using multiplying with the area model multiplication

Model the problem $4 \times 12$ using **the rectangle area model.**

**Remember**

Area of a rectangle = length × width



**Notes for parents :**

• Remind your child that when the number of ones blocks is 10 or greater, he/she needs to regroup 10 ones as 1 ten.

**Step 1**

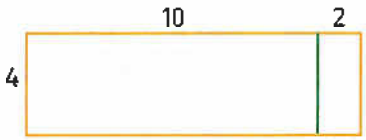
Draw a rectangle where the smaller side shows 4 and the longer side shows 12.




**Step 2**

Decompose 12 using place value.

$12 = 10 + 2$

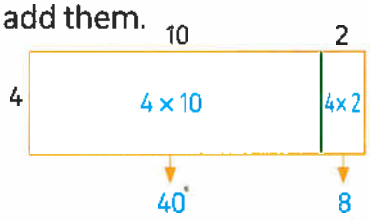



**Step 3**

Find the area of each of the new two rectangles, then add them.

- $4 \times 10 = 40$
- $4 \times 2 = 8$

So, $4 \times 12 = 40 + 8 = 48$




## Third : Using the distributive property

You can use **the distributive property** to solve the problem $4 \times 12$.

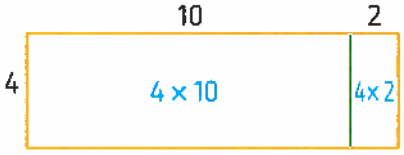
**The distributive property states that multiplying a sum by a number is the same as multiplying each addend by the number and then adding the products.**

- To find $4 \times 12$ using distributive property do as follow :

Break apart 12 into (10 + 2)

$4 \times (10 + 2) = (4 \times 10) + (4 \times 2)$ "Distributive property"

$= 40 + 8 = 48$



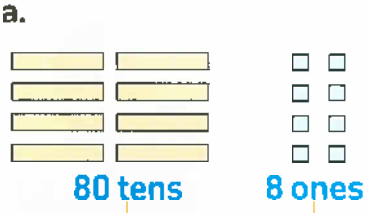

## Example 1

**Use base-ten blocks to find each product.**

**a.** $22 \times 4$ **b.** $5 \times 13$

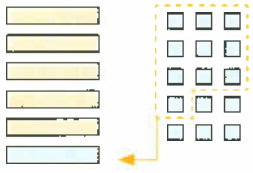
**Solution**

**a.**




So, $22 \times 4 = 80 + 8 = 88$

**b.**



*Regroup 10 ones as 1 ten*

So, $5 \times 13 = 60 + 5 = 65$



**Notes for parents :**

- While there are multiple ways to decompose a number, numbers should be decomposed using place value when using an area model for multiplication. For example, it is possible to decompose 23 in many different ways, including 17 and 6 , 10 and 13, or 14 and 9. However, 23 should be decomposed into 20 and 3 when using an area model for multiplication.

## Example 2

**Draw an area model to solve each product.**

a. $6 \times 51$

b. $39 \times 8$

### Solution

a. $51 = 50 + 1$

| | 50 | 1 |
|---|---|---|
| 6 | $6 \times 50 = 300$ | $6 \times 1 = 6$ |

So, $6 \times 51 = 300 + 6 = 306$

b. $39 = 30 + 9$

| | 30 | 9 |
|---|---|---|
| 8 | $8 \times 30 = 240$ | $8 \times 9 = 72$ |

So, $39 \times 8 = 240 + 72 = 312$

## Example 3

**Use the distributive property to solve each problem.**

a. $6 \times 324$

b. $7 \times 2{,}915$

c. $5 \times 407$

### Solution

a. $6 \times 324 = 6 \times [300 + 20 + 4]$

$= [6 \times 300] + [6 \times 20] + [6 \times 4]$

$= 1{,}800 + 120 + 24 = 1{,}944$

b. $7 \times 2{,}915 = 7 \times [2{,}000 + 900 + 10 + 5]$

$= [7 \times 2{,}000] + [7 \times 900] + [7 \times 10] + [7 \times 5]$

$= 14{,}000 + 6{,}300 + 70 + 35 = 20{,}405$

c. $5 \times 407 = 5 \times [400 + 7]$

$= [5 \times 400] + [5 \times 7]$

$= 2{,}000 + 35 = 2{,}035$

### Check your understanding

**Solve each problem. Draw an area model to help you if necessary.**

a. $7 \times 29$

b. $4 \times 283$

- Your child may incorrectly decompose the factors according to their digits rather than according to the value of their digits. He/She may decompose 24 as 2 and 4 rather than 20 and 4.
- Your child may get confused with how many zeros to place at the end of a product. For example, your child may write $7 \times 2{,}000 = 1{,}400$ instead of $7 \times 2{,}000 = 14{,}000$. Your child may also write $5 \times 200 = 100$ instead of $5 \times 200 = 1{,}000$

# Exercise 30

on lessons 1&2

- The Area Model Strategy
- The Distributive Property

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Use a quick draw to solve each of the problems that follow.

a. $17 \times 4$

b. $21 \times 3$

c. $14 \times 5$

**2.** Draw an area model to solve each of the problems.

a. $5 \times 56$

b. $9 \times 43$

c. $88 \times 6$

d. $67 \times 4$

e. $91 \times 6$

f. $35 \times 7$

g. $3 \times 255$

h. $7 \times 206$

i. $7 \times 723$

j. $583 \times 6$

k. $8 \times 4{,}943$

l. $1{,}193 \times 5$

**3.** Use the distributive property to solve each problem.

a. $8 \times 35$

b. $7 \times 68$

c. $2 \times 724$

d. $3 \times 684$

e. $5 \times 135$

f. $8 \times 214$

g. $9 \times 463$

h. $3 \times 1{,}476$

i. $9 \times 4{,}523$

j. $4 \times 9{,}035$

k. $7 \times 6{,}003$

l. $8 \times 2{,}560$

**4.** Find the result of each of the following.

| | | |
|---|---|---|
| a. $3 \times 29$ | b. $5 \times 64$ | c. $7 \times 123$ |
| d. $94 \times 6$ | e. $8 \times 1{,}374$ | f. $2{,}317 \times 2$ |

**5.** Put (✓) for the correct statement or (✗) for the incorrect statement.

a. $8 \times 245 = 1{,}960$ [ ]

b. $6 \times 34 = (6 \times 3) + (6 \times 4)$ [ ]

c. $7 \times 100 + 7 \times 50 + 7 \times 3 = 7 \times 153$ [ ]

d. $33 \times 9 = 2{,}727$ [ ]

e. $5 \times 440 = 5 \times 40 + 5 \times 4$ [ ]

f. $202 \times 7 = 1{,}414$ [ ]

**6.** Complete.

a. $5 \times 467 = 5 \times 400 + 5 \times$ _____ $+ 5 \times 7$

b. $2 \times 139 = 2 \times$ _____ $+ 2 \times$ _____ $+ 2 \times 9$

c. $4 \times 7{,}346 = 4 \times$ _____ $+ 4 \times 300 + 4 \times$ _____ $+ 4 \times 6$

d. $8 \times$ _____ $= 8 \times 500 + 8 \times 90 + 8 \times 2$

e. $241 \times$ _____ $= 6 \times 200 + 6 \times 40 + 6 \times 1$

f. $3 \times 1{,}805 = 3 \times$ _____ $+ 3 \times$ _____ $+ 3 \times$ _____

**7.** Answer each of the following problems. Draw an area model to help you if needed.

a. A runner covers 634 meters in a minute.

Calculate the distance he covers in 4 minutes with the same speed.

b. A city bus is 1,280 centimeters long. What is the length of 3 city buses?

c. There are 6 people who won 145 pounds each at the fair. How much money did they win all together?

[El-Kalyoubia & Ismailia 22]

d. Twenty-two passengers can fit on each river bus at a time. What is the maximum number of passengers the river bus can carry if it makes 5 trips?

[Alexandria - Borg El-Arab 22]

8. **Error Analysis.** Examine the student work that follows. Identify what the student did correctly and incorrectly, and then try to solve the problem correctly.

A student solved the problem 36 × 8 in the following way:

| | 3 | 6 |
|---|---|---|
| 8 | 8 × 3 = 24 | 8 × 6 = 48 |

$$\begin{array}{r} 48 \\ +\ 24 \\ \hline 72 \end{array}$$

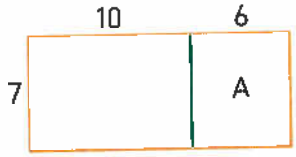
36 × 8 = 72

**Explain your thinking.**

# Multiple Choice Questions

Choose the correct answer.

**1.** The area model represents 16 × 7. What number representing the area of rectangle A ?



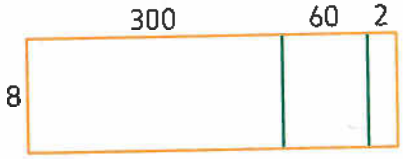

A. 7 B. 70 C. 42 D. 420

**2.** Based on the area model, what is 531 × 6 ?




A. 54 B. 486 C. 3,186 D. 30,186

**3.** What is the correct way to use the area model to multiply 362 × 8 ?




A. [300 × 8] + [60 × 8] + [2 × 8]

B. [360 × 2] + [62 × 8]

C. [300 × 8] × [60 × 8] × [2 × 8]

D. [360 × 8] × [2 × 8]

**4.** 7 × 509 = ____

A. [7 × 5] + [7 × 9]

B. [7 × 50] + [7 × 9]

C. [7 × 5] + [7 × 90]

D. [7 × 500] + [7 × 9]

**5.** [6 × 40] + [6 × 8] = ____

A. 6 × 48

B. 6 × 84

C. 6 × 480

D. 6 × 12

**6.** 4 × 237 = ____

A. 938

B. 944

C. 964

D. 948

**7.** 1,663 × 9 = ____

A. 14,937

B. 14,967

C. 14,976

D. 15,967

**8.** 8 × 450 = ____

A. 36,000 B. 36 tens C. 36 Hundreds D. 36

**9.** Bassem saves 746 pounds monthly, then how much money does he save in 9 months ?

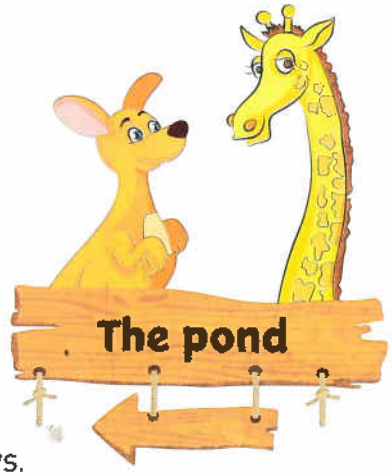
A. 6,514 B. 6,714 C. 6,914 D. 6,974

Lessons
# 3&4

- **The Partial Products Algorithm**
- **The Standard Multiplication Algorithm**

## Learn 1 The partial products algorithm

At the Zoo, you can take a ride around the pond on a boat. If it takes 16 minutes to go around the pond in the boat, **how many minutes does it take to go around the pond twice ?**




**Multiply :** $16 \times 2$

Use the partial products algorithm as follows.

**Step 1**

**Multiply the tens.**

$$\begin{array}{r} 16 \\ \times\ \ 2 \\ \hline 20 \end{array} \longrightarrow [10 \times 2]$$

**Step 2**

**Multiply the ones.**

$$\begin{array}{r} 16 \\ \times\ \ 2 \\ \hline 20 \\ 12 \end{array} \longrightarrow [6 \times 2]$$

**Step 3**

**Add the products.**

$$\begin{array}{r} 16 \\ \times\ \ 2 \\ \hline 20 \\ +\ 12 \\ \hline 32 \end{array}$$

**So,** it takes 32 minutes.

**Hint**

You can multiply the ones first, then multiply the tens as follows.

**Step 1**

**Multiply the ones.**

$$\begin{array}{r} 16 \\ \times\ \ 2 \\ \hline 12 \end{array} \longrightarrow [6 \times 2]$$

**Step 2**

**Multiply the tens.**

$$\begin{array}{r} 16 \\ \times\ \ 2 \\ \hline 12 \\ 20 \end{array} \longrightarrow [10 \times 2]$$

**Step 3**

**Add the products.**

$$\begin{array}{r} 16 \\ \times\ \ 2 \\ \hline 12 \\ +\ 20 \\ \hline 32 \end{array}$$

**Notes for parents :**

- Your child should recognize that the commutative property of multiplication allows us to write the factors in any order.

## Example 1

**Use the partial products algorithm to solve the following.**

a. $76 \times 3$ b. $8 \times 214$ c. $6 \times 1{,}352$

### Solution

a.

$$\begin{array}{r} 76 \\ \times \quad 3 \\ \hline 210 \\ + \quad 18 \\ \hline 228 \end{array}$$

$210 \longrightarrow [70 \times 3]$ "Multiplying the tens"

$18 \longrightarrow [6 \times 3]$ "Multiplying the ones"

b.

$$\begin{array}{r} 214 \\ \times \quad 8 \\ \hline 1{,}60 \\ + \quad 8 \\ + \quad 3 \\ \hline 1{,}71 \end{array}$$

$1{,}60 \longrightarrow [200 \times 8]$ "Multiplying the hundreds"

$8 \longrightarrow [10 \times 8]$ "Multiplying the tens"

$3 \longrightarrow [4 \times 8]$ "Multiplying the ones"

c.

$$\begin{array}{r} 1{,}352 \\ \times \quad 6 \\ \hline 6{,}000 \\ + \; 1{,}800 \\ + \quad 300 \\ + \quad 12 \\ \hline 8{,}112 \end{array}$$

$6{,}000 \longrightarrow [1{,}000 \times 6]$ "Multiplying the thousands"

$1{,}800 \longrightarrow [300 \times 6]$ "Multiplying the hundreds"

$300 \longrightarrow [50 \times 6]$ "Multiplying the tens"

$12 \longrightarrow [2 \times 6]$ "Multiplying the ones"



### Check your understanding

**Fill in the blanks with the missing numbers to multiply.**

a.

$$\begin{array}{r} 35 \\ \times \quad 5 \\ \hline 150 \quad [\_\_\_\_ \times \_\_\_\_] \\ + \quad 25 \quad [\_\_\_\_ \times \_\_\_\_] \\ \hline 175 \end{array}$$

b.

$$\begin{array}{r} 254 \\ \times \quad 6 \\ \hline \_\_\_\_ \quad [6 \times 200] \\ + \quad 300 \quad [6 \times \_\_\_\_] \\ + \quad \_\_\_\_ \quad [6 \times 4] \\ \hline \end{array}$$

**Notes for parents :**

- Remind your child to line up the products carefully according to the place value.

## Learn 2 The standard multiplication algorithm

**Find : 24 × 3**

You can use the standard multiplication algorithm.

**Step 1**

Multiply the ones.
3 × 4 ones = 12 ones
Regroup the ones.

$$\begin{array}{r} {\scriptstyle ①}\phantom{0} \\ 24 \\ \times\ \ 3 \\ \hline 2 \end{array}$$

Regroup 12 ones as 1 ten and 2 ones

**Step 2**

Multiply the tens.
3 × 2 tens = 6 tens
, then add the regrouped ten
6 tens + 1 ten = 7 tens

$$\begin{array}{r} {\scriptstyle ①}\phantom{0} \\ 24 \\ \times\ \ 3 \\ \hline 72 \end{array}$$

So, 24 × 3 = 72

**Hint**

You can write the products in a short way as the following examples.

## Example 2

**Use the standard multiplication algorithm to solve the following.**

a. 6 × 512

b. 2,194 × 7



**Solution**

a.

$$\begin{array}{r} {\scriptstyle ①}\phantom{00} \\ 512 \\ \times\ \ \ 6 \\ \hline 3,072 \end{array}$$

b.

$$\begin{array}{r} {\scriptstyle ①\,⑥\,②} \\ 2,194 \\ \times\ \ \ \ \ 7 \\ \hline 15,358 \end{array}$$

### Check your understanding

**Find the products.**

a. 56 × 4

b. 3 × 174

c.

$$\begin{array}{r} 4,015 \\ \times\ \ \ 2 \\ \hline \end{array}$$

- Your child sometimes has difficulty demonstrating proper regrouping when using the standard algorithm for multiplication. He/She may omit writing the digit above the correct place or he/she may attempt to place two digits at a time in the product.
- Train your child to use the short way to find the products.

# Exercise 31

on lessons 3&4

- The Partial Products Algorithm
- The Standard Multiplication Algorithm

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**1.** Fill in the blanks with the missing numbers.

**a.**

$$\begin{array}{rl} 28 & \\ \times\ 6 & \\ \hline 120 & [\ \_\_ \times \_\_\ ] \\ +\ 48 & [\ \_\_ \times \_\_\ ] \\ \hline 168 & \end{array}$$

**b.**

$$\begin{array}{rl} 239 & \\ \times\ 7 & \\ \hline 1,400 & [\ \_\_ \times \_\_\ ] \\ +\ 210 & [\ \_\_ \times \_\_\ ] \\ +\ 63 & [\ \_\_ \times \_\_\ ] \\ \hline 1,673 & \end{array}$$

**c.**

$$\begin{array}{rl} 1,485 & \\ \times\ 2 & \\ \hline 2,000 & [\ \_\_ \times \_\_\ ] \\ +\ 800 & [\ \_\_ \times \_\_\ ] \\ +\ 160 & [\ \_\_ \times \_\_\ ] \\ +\ 10 & [\ \_\_ \times \_\_\ ] \\ \hline 2,970 & \end{array}$$

**d.**

$$\begin{array}{rl} 634 & \\ \times\ 5 & \\ \hline \_\_\_ & [5 \times 600] \\ +\ 150 & [\ \_\_ \times \_\_\ ] \\ +\ \_\_\_ & [5 \times 4] \\ \hline \_\_\_ & \end{array}$$

**e.**

$$\begin{array}{rl} 2,523 & \\ \times\ 5 & \\ \hline 10,000 & [\ \_\_ \times 2{,}000] \\ +\ \_\_\_ & [5 \times 500] \\ +\ 100 & [5 \times \_\_\ ] \\ +\ \_\_\_ & [5 \times 3] \\ \hline \_\_\_ & \end{array}$$

**f.**

$$\begin{array}{rl} 6,421 & \\ \times\ 6 & \\ \hline 36,000 & [\ \_\_ \times \_\_\ ] \\ +\ \_\_\_ & [6 \times 400] \\ +\ 120 & [6 \times \_\_\ ] \\ +\ \_\_\_ & [6 \times 1] \\ \hline \_\_\_ & \end{array}$$

**2.** Solve using the partial products algorithm.

a. $8 \times 67$

b. $29 \times 4$

c. $5 \times 343$

d. $6 \times 678$

e. $284 \times 4$

f. $305 \times 7$

g. $3 \times 2{,}539$

h. $4{,}731 \times 4$

**3.** Solve using the standard algorithm.

a. $7 \times 30$

b. $27 \times 3$

c. $4 \times 800$

d. $126 \times 7$ [Monofia 22]

e. $630 \times 5$

f. $204 \times 2$

g. $735 \times 5$

h. $1{,}390 \times 2$

i. $2{,}213 \times 4$

**4.** Compare. Write "< , > or =" for each ☐.

a. $4 \times 326$ ☐ $3 \times 467$

b. $8 \times 199$ ☐ $5 \times 321$

c. $2 \times 3{,}750$ ☐ $3 \times 2{,}500$

d. $5 \times 272$ ☐ $6 \times 231$

e. $7 \times 408$ ☐ $6 \times 476$

f. $4 \times 7{,}424$ ☐ $8 \times 3{,}695$

**5.** Three students tried solving $328 \times 2$ using the standard algorithm. Explain who you think solved the problem correctly and identify at least one error in another student's solution.

Student 1

$$\begin{array}{r} 328 \\ \times\ \ 2 \\ \hline 646 \end{array}$$

Student 2

$$\begin{array}{r} {\scriptstyle 1}\ \ \\ 328 \\ \times\ \ 2 \\ \hline 656 \end{array}$$

Student 3

$$\begin{array}{r} {\scriptstyle 1}\ \ \\ 328 \\ \times\ \ 2 \\ \hline 746 \end{array}$$

**6.** **Fix the Error.**

Look at the standard algorithm solution for each multiplication problem.

Circle the problem if the solution is correct. If the solution is incorrect, fix the error.

$$\begin{array}{r} {\scriptstyle 2}\ \ \\ 158 \\ \times\ \ 3 \\ \hline 374 \end{array}$$

$$\begin{array}{r} {\scriptstyle 2\ 1}\ \ \\ 3,142 \\ \times\ \ 5 \\ \hline 15,710 \end{array}$$

$$\begin{array}{r} 98 \\ \times\ \ 2 \\ \hline 86 \end{array}$$

$$\begin{array}{r} {\scriptstyle 1}\ \ \\ 470 \\ \times\ \ 4 \\ \hline 1,880 \end{array}$$

$$\begin{array}{r} {\scriptstyle 1\ 4\ 3}\ \ \\ 1,286 \\ \times\ \ 6 \\ \hline 6,286 \end{array}$$

## Challenge

**7.** Find the missing numbers on Manal paper.

**Explain your thinking.**

Manal

$$\begin{array}{r} 4,623 \\ \times\ \ \square \\ \hline 36,9\square 4 \end{array}$$

# Multiple Choice Questions

**Choose the correct answer.**

**1.**
$$\begin{array}{r} 54 \\ \times\ 7 \\ \hline \end{array}$$

A. 63 B. 378
C. 278 D. 368

**2.**
$$\begin{array}{r} 235 \\ \times\ 6 \\ \hline \end{array}$$

A. 60 B. 1,200
C. 1,410 D. 3,192

**3.** $2 \times 1{,}324 =$ _____

A. 2,648 B. 8,462
C. 26,480 D. 2,688

**4.** $504 \times 6 =$ _____

A. 324 B. 30,240
C. 3,240 D. 3,024

**5.** The product of $192 \times 3$ is near close to _____

A. 400 B. 500
C. 600 D. 700

**6.** Which product is NOT correct ?

A. $63 \times 4 = 252$
B. $3 \times 48 = 144$
C. $7 \times 27 = 149$
D. $6 \times 153 = 918$

**7.** Which partial products can be used to solve $[35 \times 6]$ ? (Aswan - Kom Ombo 22)

A. $[3 \times 6] \times [50 \times 6]$ B. $[30 \times 6] \times [50 \times 6]$
C. $[30 \times 6] + [5 \times 6]$ D. $[3 \times 5] + [5 \times 6]$

**8.** What is the ones digit of the product of $53 \times 6$ will be without solving the whole problem ?

A. 3 B. 6 C. 8 D. 9

Lesson 5

# Review Connecting Strategies

Just for Reading



## Learn Estimate products - Choose a strategy

### Example

**Estimate the product. Multiply to check.**

a. $3 \times 62$ b. $284 \times 7$

**Solution**

**a.** Round 62 to the greatest place value.

$3 \times 62$

$3 \times 60 = 180$

The actual product :

[Using Area Model Strategy]

| | 60 | 2 |
|---|---|---|
| 3 | $3 \times 60 = 180$ | $3 \times 2 = 6$ |

$3 \times 62 = 180 + 6 = 186$

**b.** Round to the nearest ten

$284 \times 7 \rightarrow 280 \times 7$

$280 \times 7 = 1,960$

The actual product :

[Using the Standard Multiplication Strategy]

$$\begin{array}{r} \overset{5}{2}\overset{2}{8}4 \\ \times \quad 7 \\ \hline 1,988 \end{array}$$

## Check your understanding

**Estimate the product. Choose a strategy to find the actual product.**

a. $87 \times 6$

b. $764 \times 5$

c. $4 \times 341$

**Notes for parents :**

- Let your child use rounding to check the reasonableness of the answer.
- Your child may has difficulty determining the number of zeros in a product when multiplying by multiples of 10. especially when the product of the basic fact ends in zero. For example, your child may think that $80 \times 5 = 40$ rather than 4.00

Lessons
# 6&7

- **Two-Digit Multiplication**
- **Area Models and Two-Digit Multiplication**



## Learn 1 Multiplying two multiples of 10

Essam bought 20 statues for 30 pounds each as souvenirs, how much money did he pay ?

**Remember**

The numbers 10, 20, 30, 40,... are multiples of 10.

**Multiply :** $20 \times 30$

**How to find the product of $20 \times 30$.**

$20 \times 30 = 600$

- Multiply $2 \times 3 = 6$ [Basic Fact]
- Put 00 on the right to get the number 600.

So, he paid 600 pounds.

## Example 1

**Find the product.**

a. $50 \times 30$

b. $40 \times 70$

**Solution**

a. $50 \times 30 = 1{,}500$

b. $40 \times 70 = 2{,}800$

## Check your understanding

1. **Multiply : $70 \times 40$**

2. **Multiply : $80 \times 90$**

**Notes for parents :**

- Let your child notice that the product has as many zeroes as the total number of zeroes in the factors plus any additional zeroes in the basic fact product.

## Learn 2 Multiplying a 2-digit number by a multiple of 10

A primary school is formed of 30 classes of 25 pupils each.

Calculate the total number of pupils.



**Multiply :** $30 \times 25$

**You can use the area model.**

| | 20 | 5 |
|---|---|---|
| 30 | $30 \times 20 = 600$ | $30 \times 5 = 150$ |

$30 \times 25 = 600 + 150 = 750$

**So,** the total number of pupils is 750.

## Example 2

**Multiply.**

**a.** $60 \times 17$

**b.** $48 \times 90$

### Solution

**a.** $60 \times 17 = 600 + 420$

$= 1{,}020$

| | 10 | 7 |
|---|---|---|
| 60 | $60 \times 10 = 600$ | $60 \times 7 = 420$ |

**b.** $48 \times 90 = 3{,}600 + 720$

$= 4{,}320$

| | 40 | 8 |
|---|---|---|
| 90 | $90 \times 40 = 3{,}600$ | $90 \times 8 = 720$ |

## Check your understanding

**Multiply : $28 \times 70$**

Work area

**Notes for parents :**

- Let your child notice that the product of any number and a multiple of 10 has a zero in the ones place.

## Learn 3 Area models and two-digit multiplication

Bassem bought 12 books to read. Each book costs 47 pounds.

How much money did Bassem pay ?



**Multiply :** $12 \times 47$

**You can use the area model as follows.**

- $12 = 10 + 2$
- $47 = 40 + 7$

| × | 40 | 7 |
|---|---|---|
| 10 | $10 \times 40 = 400$ | $10 \times 7 = 70$ |
| 2 | $2 \times 40 = 80$ | $2 \times 7 = 14$ |

(47 spans the columns; 12 spans the rows)

$12 \times 47 = 400 + 70 + 80 + 14 = 564$

**So,** Bassem paid 564 pounds.

## Example 3

**Use the area model to solve the following.**

a. $74 \times 33$

b. $49 \times 56$

### Solution

a. • $74 = 70 + 4$ • $33 = 30 + 3$

| × | 30 | 3 |
|---|---|---|
| 70 | $70 \times 30 = 2{,}100$ | $70 \times 3 = 210$ |
| 4 | $4 \times 30 = 120$ | $4 \times 3 = 12$ |

$74 \times 33 = 2{,}100 + 210 + 120 + 12 = 2{,}442$

b. • $49 = 40 + 9$ • $56 = 50 + 6$

| × | 40 | 9 |
|---|---|---|
| 50 | $50 \times 40 = 2{,}000$ | $50 \times 9 = 450$ |
| 6 | $6 \times 40 = 240$ | $6 \times 9 = 54$ |

$49 \times 56 = 2{,}000 + 450 + 240 + 54 = 2{,}744$

## Check your understanding

**Multiply : $41 \times 36$**

- Let your child write the factors in expanded form before finding product.
- Make sure that your child multiplies the correct numbers together.

# Exercise 32

on lessons 6&7

- Two-Digit Multiplication
- Area Models and Two-Digit Multiplication

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**1.** Find the following products.

a. $20 \times 40 =$ ____

b. 📖 $30 \times 50 =$ ____

c. 📖 $20 \times 80 =$ ____

d. $40 \times 70 =$ ____

e. 📖 $50 \times 60 =$ ____

f. $30 \times 90 =$ ____

g. 📖 $40 \times 40 =$ ____

h. $50 \times 90 =$ ____

i. $60 \times 20 =$ ____

j. $50 \times 80 =$ ____

k. 📖 $60 \times 30 =$ ____

l. $60 \times 80 =$ ____

m. 📖 $70 \times 70 =$ ____

n. $80 \times 70 =$ ____

o. 📖 $90 \times 70 =$ ____

p. $80 \times 80 =$ ____

q. $80 \times 90 =$ ____

r. $90 \times 90 =$ ____

**2.** 📖 Complete the table.

| | Problem | Area Model | Numbers and symbols |
|---|---|---|---|
| a. | $40 \times 62$ | ____ | 2,480 |
| b. | $70 \times 55$ | ____ | ____ |
| c. | $54 \times 30$ | ____ | ____ |
| d. | $40 \times 78$ | ____ | ____ |
| e. | $44 \times 20$ | ____ | ____ |
| f. | $15 \times 30$ | ____ | ____ |
| g. | $10 \times 40$ | ____ | ____ |
| h. | $72 \times 40$ | ____ | ____ |

**3.** Solve.

a. 10 × 56 = _____

b. 20 × 54 = _____

c. 20 × 66 = _____

d. 30 × 18 = _____

e. 30 × 78 = _____

f. 23 × 40 = _____

g. 21 × 20 = _____

h. 90 × 32 = _____

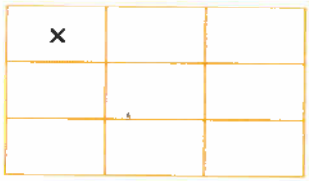
[Dakahlia 22]

**4.** Create area models to solve the problems.

a. 81 × 23



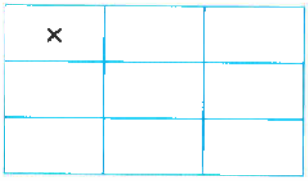

b. 45 × 28



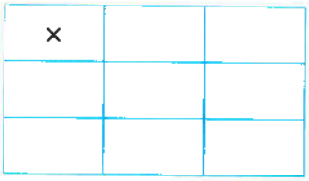

c. 60 × 12



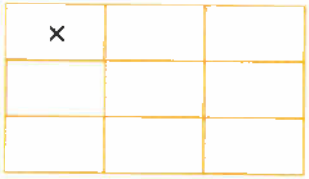

d. 22 × 17




e. 34 × 19




f. 72 × 15




g. 24 × 37



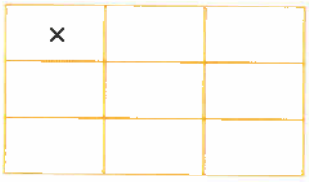

h. 45 × 29




i. 61 × 26




j. 58 × 44



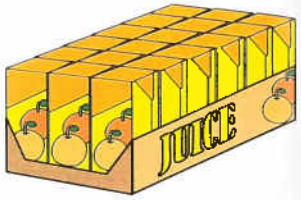
**5.** 📖 **Error Analysis.**

Examine the student's work. Is his answer reasonable ? How do you know ? Explain your thinking.

$22 \times 50 = (20 + 2) \times 50 = (20 \times 50) + (2 \times 50) = 100 + 100 = 200$

**6.** **Answer the following.**

**a.** A merchant bought 20 boxes of soft drinks for 40 pounds each. How much money did he pay ?




**b.** Hany paints pictures and sells them at art shows. He charges 56 L.E. for a picture. Find the total price for 15 pictures. [Suez 2022]



**c.** 📖 A group of 38 people want to travel by bus. Each bus ticket costs 30 L.E. How much do they need to pay in all ?




**d.** The book store ordered 34 boxes of a new book. There were 24 books in each box. How many copies of the book did they recieve ?



**e.** Mina runs 14 hours every week. What is the number of running hours in 29 weeks ?



# Multiple Choice Questions

Choose the correct answer.

**1.** $40 \times 90 =$ ———

A. 36 B. 360

C. 3,600 D. 36,000

**2.** ——— $\times 70 = 3{,}500$

A. 30 B. 35

C. 50 D. 53

**3.** $53 \times 8 =$ ———

A. 280 B. 424

C. 64 D. 640

**4.** $19 \times 30 =$ ———

A. 57 B. 1,930

C. 273 D. 570

**5.** Which area model best represents $69 \times 4$ ?

A.

| | 9 | 4 |
|---|---|---|
| 60 | 540 | 240 |

B.

| | 40 | 4 |
|---|---|---|
| 69 | 2,760 | 276 |

C.

| | 90 | 6 |
|---|---|---|
| 4 | 360 | 24 |

D.

| | 60 | 9 |
|---|---|---|
| 4 | 240 | 36 |

**6.** What is the unknown value in the area model of $17 \times 40$ ? [Giza - 6th October 22]

| × | 30 | 10 |
|---|---|---|
| 10 | 300 | 100 |
| 7 | 210 | ? |

A. 70 B. 140

C. 210 D. 17

**7.** What is the correct way to use the area model to multiply $54 \times 27$ ?

| × | 50 | 4 |
|---|---|---|
| 20 | | |
| 7 | | |

A. $7 + 20 + 50 + 4 = 81$

B. $1{,}000 + 350 + 80 = 1{,}430$

C. $1{,}000 + 350 + 80 + 28 = 1{,}458$

D. $10{,}000 + 350 + 80 + 28 = 10{,}458$

**8.** Mona made 11 bracelets. There are 13 beads on each bracelet. How many beads are there on all 11 bracelets ?

A. 130 B. 132 C. 143 D. 156

Lesson
8

# Algorithms and Two-Digit Multiplication



## Learn 1 Multiplying 2-digit numbers by partial products

A group of 25 students each jumped rope for 13 minutes.

How many minutes in all did they jump rope ?



**Multiply :** $25 \times 13$

**You can use algorithm of partial products as follows.**

$$
\begin{array}{rl}
 & 25 \\
\times & 13 \\
\hline
 & 15 \quad \leftarrow [3 \times 5]\ \text{Multiply the ones by the ones} \\
+ & 60 \quad \leftarrow [3 \times 20]\ \text{Multiply the ones by the tens} \\
+ & 50 \quad \leftarrow [10 \times 5]\ \text{Multiply the tens by the ones} \\
+ & 200 \quad \leftarrow [10 \times 20]\ \text{Multiply the tens by the tens} \\
\hline
 & 325 \quad \leftarrow \text{Add the partial products}
\end{array}
$$

**So,** the number of minutes in all is 325.

## Example 1

**Estimate. Find the product by the algorithm of partial products.**

**a.** $19 \times 42$

**b.** $81 \times 37$

### Solution

**a.**

$$
\begin{array}{rl}
 & 19 \\
\times & 42 \\
\hline
 & 18 \quad \leftarrow [2 \times 9] \\
+ & 20 \quad \leftarrow [2 \times 10] \\
+ & 360 \quad \leftarrow [40 \times 9] \\
+ & 400 \quad \leftarrow [40 \times 10] \\
\hline
 & 798
\end{array}
$$

**b.**

$$
\begin{array}{rl}
 & 81 \\
\times & 37 \\
\hline
 & 7 \quad \leftarrow [7 \times 1] \\
+ & 560 \quad \leftarrow [7 \times 80] \\
+ & 30 \quad \leftarrow [30 \times 1] \\
+ & 2,400 \quad \leftarrow [30 \times 80] \\
\hline
 & 2,997
\end{array}
$$

**Notes for parents :**

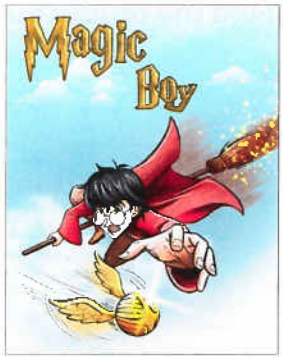
- In this lesson, your child will apply a variety of strategies to solve two-digit by two-digit multiplication problems.
- Your child may have difficulty decomposing numbers when a problem is written vertically.

## Learn 2 Multiplying 2-digit numbers by standard algorithm

An animator creates 24 pictures for each second of an animated cartoon.

How many pictures are drawn to make a cartoon that is 45 seconds long?

**Multiply:** $24 \times 45$




**Step 1**
Multiply by ones.

$$\begin{array}{r} \overset{(2)}{2}4 \\ \times\ 45 \\ \hline 120 \end{array} \longleftarrow 5 \times 24$$

**Step 2**
Multiply by tens.

$$\begin{array}{r} \overset{(1)}{\overset{(2)}{\cancel{2}}}4 \\ \times\ 45 \\ \hline 120 \\ 960 \end{array} \longleftarrow 40 \times 24$$

**Step 3**
Add the products.

$$\begin{array}{r} \overset{(1)}{\overset{(2)}{\cancel{2}}}4 \\ \times\ 45 \\ \hline 120 \\ +\ 960 \\ \hline 1,080 \end{array}$$

**So,** the animator creates 1,080 pictures to make a 45-second cartoon.

## Example 2

**Multiply by the standard algorithm.**

a. $38 \times 17$

b. $86 \times 54$

### Solution

a.

$$\begin{array}{r} \overset{(5)}{3}8 \\ \times\ 17 \\ \hline 266 \\ +\ 380 \\ \hline 646 \end{array} \begin{array}{l} \longleftarrow 7 \times 38 \\ \longleftarrow 10 \times 38 \end{array}$$

b.

$$\begin{array}{r} \overset{(3)}{\overset{(2)}{\cancel{2}}}6 \\ \times\ 54 \\ \hline 344 \\ +\ 4,300 \\ \hline 4,644 \end{array} \begin{array}{l} \longleftarrow 4 \times 86 \\ \longleftarrow 50 \times 86 \end{array}$$

- Remind your child that although he/she has been learning different strategies for multiplication, mathematicians work towards being efficient in their calculations. It might take a long time to draw an area model to solve a problem, so they may choose to use an algorithm like partial products or the standard algorithm.

## Check your understanding

**1. Find the product using algorithm of partial products.**

**a.**

$$\begin{array}{r} 45 \\ \times\ 72 \\ \hline \\ + \\ + \\ + \\ \hline \end{array}$$

← [ ☐ × ☐ ]
← [ ☐ × ☐ ]
← [ ☐ × ☐ ]
← [ ☐ × ☐ ]

**b.**

$$\begin{array}{r} 23 \\ \times\ 98 \\ \hline \\ + \\ + \\ + \\ \hline \end{array}$$

← [ ☐ × ☐ ]
← [ ☐ × ☐ ]
← [ ☐ × ☐ ]
← [ ☐ × ☐ ]

**2. Solve using any strategy.**

**a.** $57 \times 16 =$ .....

**b.** $24 \times 88 =$

**c.** $35 \times 62 =$ _____



**Notes for parents :**

- Help your child make connections between the partial products algorithm, and the standard algorithm for two-digit multiplication. Making these connections helps your child build deep understanding of multiplication processes.

# Exercise 33

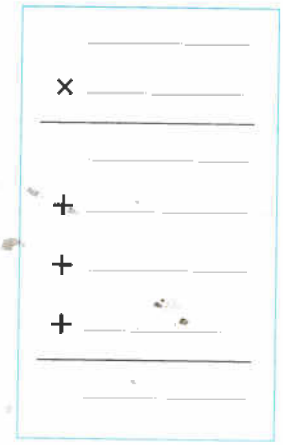
on lesson 8

## Algorithms and Two-Digit Multiplication

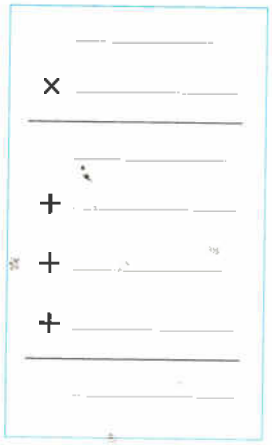
REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Solve using the partial products algorithm.

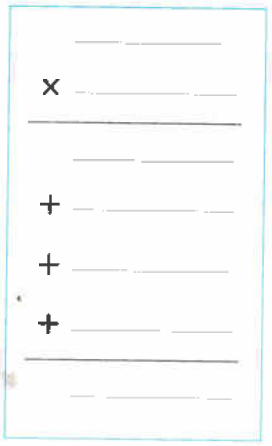
a. $14 \times 26 =$ ____



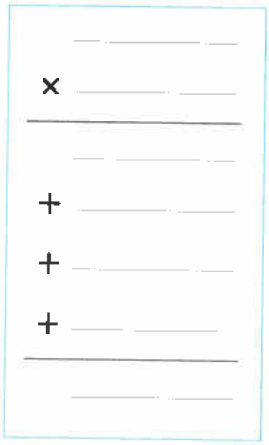
b. $38 \times 75 =$ ____



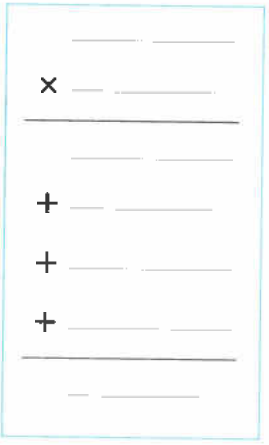
c. $55 \times 48 =$ ____



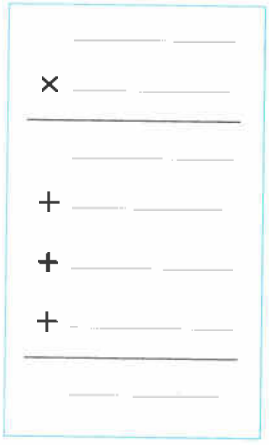
d. $36 \times 14 =$ ____



e. $44 \times 39 =$ ____

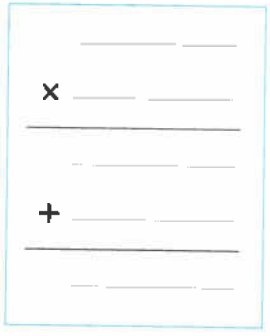


f. $53 \times 28 =$ ____

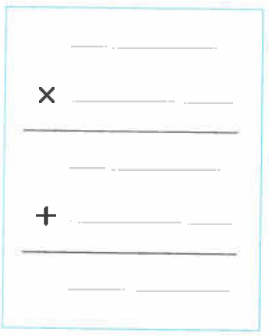


**2.** Solve using the standard algorithm.

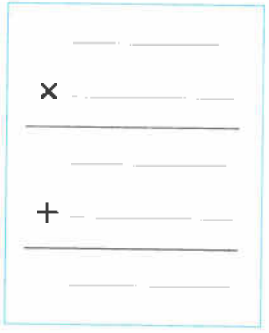
a. $52 \times 36 =$ ____



b. $25 \times 78 =$ ____



c. $63 \times 28 =$ ____



d. 46 × 25 = _____

e. 52 × 25 = _____

f. 39 × 18 = _____

**3.** Solve using any method.

a. 14 × 29 = _____

b. 67 × 21 = _____

c. 43 × 34 = _____

d. 82 × 45 = _____

e. 76 × 15 = _____

f. 17 × 32 = _____

g. 99 × 21 = _____

h. 54 × 59 = _____

i. 83 × 15 = _____

**4.** Put (✓) for the correct statement or (✗) for the incorrect statement.

a. 35 × 11 = 385 [ ]

b. 86 × 42 = 3,512 [ ]

c. 67 × 75 = [67 × 5] + [67 × 7] [ ]

d. 18 × 32 = 1,832 [ ]

e. 60 × 40 > 1,600 [Damietta 22] [ ]

f. 250 = 16 × 15 [El-Menia - Dir Mawas 22] [ ]

**5.** Use ">, <, or =" for each ◯.

a. 25 × 44 ◯ 1,200

b. 50 × 40 ◯ 2,000

c. 18 × 25 ◯ 30 × 15

d. [35 × 7] + [35 × 10] ◯ 35 × 71

e. 44 × 3 ◯ 33 × 4

f. 23 × 40 ◯ 92

**6.** Mariam ordered 47 binders for her office.

Each binder costs 15 L.E.

How much did the binders cost in all ?



**7.** A merchant bought 26 boxes of soft drinks for 88 L.E. each.

How much money did the merchant pay ?




**8. What's the Error ?**

Maged says the product of 84 and 25 is 210. Is he correct ? Explain.

**9. What's the Error ?** Describe Eman's error : Write the correct answer.

Eman

$$\begin{array}{r} 64 \\ \times\ 43 \\ \hline 192 \\ +\ 256 \\ \hline 448 \end{array}$$

## Challenge

**10.** Find the missing numbers. Explain.

$$\begin{array}{r} 35 \\ \times\ 6\square \\ \hline 1\square 5 \\ +\ 2,100 \\ \hline 2,275 \end{array}$$

# Multiple Choice Questions

Choose the correct answer.

**1.** $93 \times 14 =$ ____

A. 1,209
B. 1,496
C. 1,302
D. 2,512

**2.** $66 \times 22 =$ ____

A. 1,212
B. 1,452
C. 2,266
D. 2,662

**3.** $15 \times 24$ ☐ $40 \times 90$

A. >
B. =
C. <

**4.** What is the ones digit in the product of $34 \times 27$ ?

A. 8
B. 7
C. 5
D. 4

**5.** The missing number in the partial product is ____

A. 216
B. 56
C. 160
D. 206

$$\begin{array}{r} 27 \\ \times\ 18 \\ \hline \_\_\_ \\ 270 \\ \hline 486 \end{array}$$

**6.** The missing number in the partial product is ____

A. 14
B. 140
C. 1,400
D. 14,000

$$\begin{array}{r} 73 \\ \times\ 28 \\ \hline 24 \\ 560 \\ 60 \\ \hline \_\_\_ \\ \hline 2,044 \end{array}$$

**7.** Ali bought 18 shrubs to plant in his garden. Each shrub cost 14 L.E. How much did the shrubs cost in all ?

A. 32 L.E.
B. 252 L.E.
C. 324 L.E.
D. 462 L.E.

Lesson
9

# Putting It All Together

Just for Reading

## Learn

What is the total cost of 23 planes and 21 cars ?



Car



Plane

**• First :**

Find the cost of 23 planes

$23 \times 59 = 1{,}357$ L.E.

$$\begin{array}{r} 23 \\ \times\ 59 \\ \hline 207 \\ +\ 1{,}150 \\ \hline 1{,}357 \end{array}$$

**• Second :**

Find the cost of 21 cars

$21 \times 35 = 735$ L.E.

So, The total cost =

$1{,}357 + 735 = 2{,}092$ L.E.

$$\begin{array}{r} 21 \\ \times\ 35 \\ \hline 105 \\ +\ 630 \\ \hline 735 \end{array}$$

**Notes**

To solve a story problem, read it very well to know :

- What is given in the problem ?
- What quantities are in the problem ?
- What mathematical questions can you ask about this situation ?

## Check your understanding

Malik walked 8 kilometers on Friday and 6 kilometers on Saturday. He did this every weekend for 6 weeks. How many kilometers did he walk by the end of 6 weeks ?



**Notes for parents :**

- Help your child read, analyze and solve story problems.

Concept

# 2

# Dividing by 1-Digit Divisors



**Fast Fact**

*Cheetah is the fastest land animal in the world. A cheetah can reach 112 kilometers per hour. If a cheetah ran for quarter an hour at its fastest speed, how far could it run ?*

| Lesson No. | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
| Lesson 10 | Exploring Remainders | Dividend - Divisor - Quotient - Remainder | • Students will identify the dividend, divisor, and quotient of a division problem.<br>• Students will solve division problems.<br>• Students will explain what a remainder represents in a division problem. |
| Lesson 11 | Patterns and Place Value in Division | Dividend - Divisor - Quotient - Remainder | • Students will use place value, multiplication facts, and patterns with zeros to divide multiples of 10, 100 and 1,000 by one-digit divisors. |
| Lesson 12 | The Area Model and Division | Area model - Dividend - Divisor - Quotient - Remainder | • Students will use area models to represent and solve division problems. |
| Lessons 13&14 | The Partial Quotients Algorithm | Partial quotients algorithm | • Students will use the partial quotients algorithm to divide dividends with up to four digits by one-digit divisors. |
| | The Standard Division Algorithm | Standard algorithm - Regroup | • Students will estimate quotients using properties of place value and patterns in multiplication and division.<br>• Students will use the standard algorithm to solve division problems. |
| Lesson 15 | Division and Multiplication | Accuracy - Reasonable - Regroup | • Students will use properties of place value to accurately record quotients.<br>• Students will use the relationship between multiplication and division to check the accuracy of quotients. |
| Lesson 16 | Solving Challenging Story Problems | Review vocabulary as needed | • Students will organize information in story problems to determine when to add, subtract, multiply or divide.<br>• Students will solve story problems using addition, subtraction, multiplication and division. |

Lesson
10

# Exploring Remainders

## Learn

Three friends are playing a game of dominoes. There are 28 dominoes in the set. If each player receives the same number of dominoes, how many dominoes will each player get?
How many dominoes will be left over?



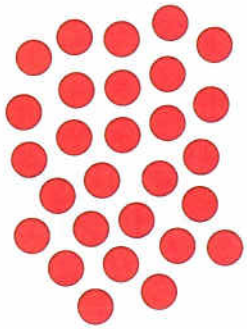
- This problem would be solved using division.
  Sometimes a number cannot be divided evenly. The amount left over is called the remainder.

**Divide :** 28 by 3.

Write 28 ÷ 3

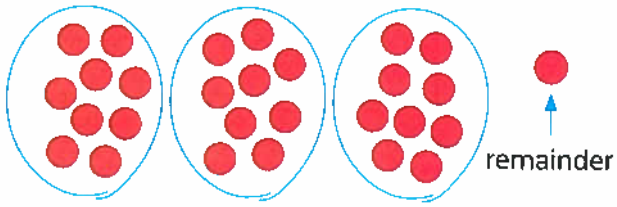
**Step 1**

Use 28 counters



**Step 2**

Draw 3 circles. Divide the 28 counters into 3 equal groups. The counter left over is the remainder.




The quotient is 9 and the remainder is 1

**Then :** 28 ÷ 3 = 9 R 1

dividend, divisor, quotient, remainder

So, each player will get 9 dominoes.
There will be 1 domino left over.

**Math Hint**

The sum of the digit 2 and 8 is 10 and 10 is not existing when skip counting by 3s so, there will be a remainder.

**Note that**

If the number is divided equally, the remainder is 0
Examples : 27 ÷ 3 = 9 R 0
40 ÷ 8 = 5 R 0

**ERROR ALERT**

If the remainder is greater than the divisor, keep dividing the counters evenly until the remainder is less than the divisor.

**Notes for parents :**

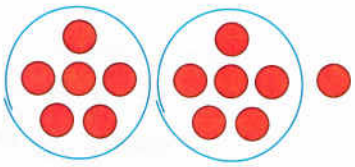
- Ask your child what the numbers in the equation represent in the problem. Label the numbers in the equation with the correct vocabulary words.

## Example 1

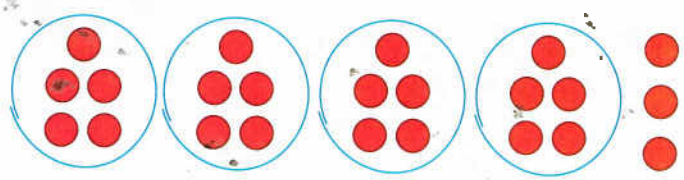
**Find the quotient and the remainder. You may use counters to model.**

a. $13 \div 2$ b. $23 \div 4$ c. $32 \div 3$

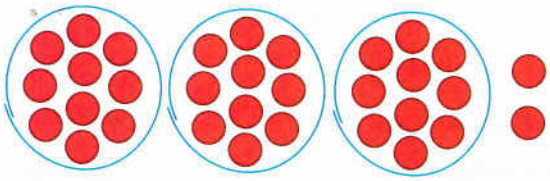
### Solution

a. 

$13 \div 2 = 6 \text{ R } 1$

b. 

$23 \div 4 = 5 \text{ R } 3$

c. 

$32 \div 3 = 10 \text{ R } 2$

**Remember**

Division is the inverse of multiplication

$2 \times 6 = 12$

$12 \div 2 = 6$

So

$13 \div 2 = 6 \text{ R } 1$

because $13 = (2 \times 6) + 1$

**Note that**

The remainder is always less than the divisor.

## Example 2

**There are 62 students in fourth grade in a school. Each table in the library room seats six students. How many tables are needed to seat all fourth graders ?**

### Solution

This problem would be solved using division $62 \div 6 = 10 \text{ R } 2$
11 tables are needed (10 tables will be filled and one more table is needed for the 2 extra students) So, $10 + 1 = 11$ tables are needed.

### Check your understanding

**Find the quotient and the remainder. You may use counters to model.**

a. $17 \div 5$

b. $26 \div 6$

c. $9 \div 2$

**Notes for parents :**

- Your child may be confused by having a remainder in a division problem. He/She may try to place the remainder into an existing group or into an additional group, both leading to unequal sharing.

# Exercise 34

on lesson 10

## Exploring Remainders

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Find the quotient and the remainder. Complete the table. You may use counters to model.

| | Problem | Quotient | Remainder | Model |
|---|---|---|---|---|
| a. | 5 ÷ 4 | | | |
| b. | 15 ÷ 6 | | | |
| c. | 17 ÷ 9 | | | |
| d. | 22 ÷ 7 | | | |
| e. | 26 ÷ 3 | | | |
| f. | 38 ÷ 5 | | | |

**2.** Find each quotient and remainder. Complete the following.

a. 11 ÷ 3 = ☐ R ☐

b. 7 ÷ 2 = ☐ R ☐

c. 26 ÷ 4 = ☐ R ☐

d. 51 ÷ 8 = ☐ R ☐

e. 20 ÷ 9 = ☐ R ☐

f. 12 ÷ 5 = ☐ R ☐

**3.** Find each quotient and remainder. You may use counters to help you.

a. 13 ÷ 2 = _____

b. 18 ÷ 7 = _____

c. 30 ÷ 4 = _____

d. 22 ÷ 6 = _____

e. 42 ÷ 8 = _____

f. 57 ÷ 7 = _____

g. 26 ÷ 5 = _____

h. 93 ÷ 9 = _____

i. 35 ÷ 6 = _____

**4.** Find each quotient and remainder. Circle all the problems which has 0 left over.

a. $20 \div 7 =$ _____ b. $18 \div 9 =$ _____ c. $31 \div 8 =$ _____

d. $72 \div 9 =$ _____ e. $51 \div 5 =$ _____ f. $22 \div 2 =$ _____

g. $44 \div 6 =$ _____ h. $24 \div 3 =$ _____ i. $65 \div 10 =$ _____

**5.** Put (✓) to the correct statement and (✗) to the incorrect statement.

a. $15 \div 14 = 3\ R\ 3$ [ ] b. $45 \div 5 = 9\ R\ 0$ [ ]

c. $44 \div 6 = 7\ R\ 4$ [ ] d. $23 \div 3 = 7\ R\ 2$ [ ]

e. $53 \div 10 = 5\ R\ 3$ [ ] f. $35 \div 4 = 7\ R\ 3$ [ ]

**6.** Solve the following problems.

a. 📖 Saleem brought 15 pies to give to 4 of his friends. How can Saleem share the pies equally ? What is left ?

b. Rose has 19 biscuits to give to her 9 friends.
How can Rose share the biscuits equally ? What is left ?

c. A full box of crayons contains 8 crayons. If each of the 42 students in a class needs to use 1 crayon at the same time in a class activity
, how many boxes of crayons are needed for all the students ?

d. 📖 There are 48 mugs that need to be put in boxes and shipped. Five mugs can fit in each box. How many boxes will be needed to ship the mugs ?

e. 🕮 Going to a Swim Meet. The swim team is taking a bus to a swim meet. Each bus seats 40 students. Sixty students will attend the meet. How many buses are needed? Use numbers, words, and symbols to explain your thinking.

f. 🕮 Thirty-two people need to travel to a special event in Zamalek. There are many different ways they can travel to the event. They can only choose one of the ways to travel for the whole group of people. Look at all of the forms of transportation they can take on the chart.

| Form of transportation | How many people can fit on each? | Equation |
|---|---|---|
| Microbus | 9 | |
| Motorbike | 2 | |
| Car | 4 | |
| Van | 7 | |

Which form of transportation should the group take to the event? Explain your answer.

## Challenge

7. Each page of Ahmed's album holds 4 photographs. He filled all 9 pages and still had 3 photos left over.
How many photos did Ahmed have to start with?

# Multiple Choice Questions

Choose the correct answer.

**1.** The amount that is left over when a number cannot be divided evenly is called _____

A. dividend
B. divisor
C. quotient
D. remainder

**2.** The number, not including the remainder, that results from dividing is called _____

A. dividend
B. divisor
C. quotient
D. product

**3.** $11 \div 3 =$ _____

A. 3 R 1
B. 4 R 1
C. 3 R 2
D. 4 R 2

**4.** $28 \div 6 =$ _____

A. 5 R 2
B. 4 R 4
C. 5 R 4
D. 4 R 2

**5.** $46 \div 8 =$ _____

A. 4 R 6
B. 4 R 8
C. 5 R 6
D. 5 R 8

**6.** $36 \div 4 =$ _____

A. 8 R 3
B. 9 R 1
C. 9 R 2
D. 9 R 0

**7.** $52 \div 7 =$ _____

A. 7 R 1
B. 7 R 2
C. 7 R 3
D. 7 R 4

**8.** $5 \div 3 =$ _____

A. 1 R 0
B. 1 R 1
C. 1 R 2
D. 1 R 3

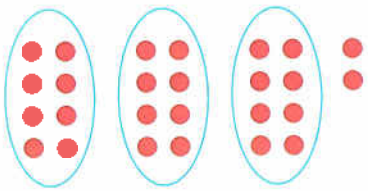
**9.** $27 \div 9 =$ _____

A. 2 R 8
B. 3 R 1
C. 3 R 0
D. 3 R 8

**10.** $25 \div 2 =$ _____

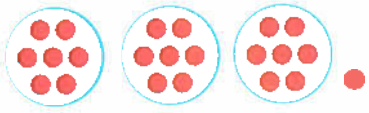
A. 12 R 0
B. 12 R 1
C. 13 R 0
D. 13 R 1

**11.** Which division problem does the model show?



A. $24 \div 3 = 8$
B. $23 \div 3 = 7$ R 2
C. $26 \div 3 = 8$ R 2
D. $21 \div 3 = 7$

**12.** Which of the following shows $22 \div 3$?

A. 22 dots in each of 3 circles.
B. 3 circles, two with 7 dots and one with 8 dots.
C. 
D. 

**13.** Mary cooked 32 cups of soup and poured it into containers that filled up with 6 cups each. How many cups of soup were left over?

A. 2 cups.
B. 4 cups.
C. 5 cups.
D. 6 cups.

**14.** Ramez is packing 54 muffins in boxes. Each box contains 5 muffins. How many boxes are needed to pack all the muffins?

A. 9 boxes.
B. 10 boxes.
C. 11 boxes.
D. 12 boxes.

Lesson 11

# Patterns and Place Value in Division

## Learn



Sara's family collected coins, when the jar was full, Sara's father gave the coins to his three daughters.
They counted 6,000 coins and shared them equally.
**How many coins did each girl get ?**

**Divide :** 6,000 ÷ 3.

Basic facts, pattern and place value can help you divide.

Use the basic fact 6 ÷ 3 = 2

6 ÷ 3 = 2
60 ÷ 3 = 20
600 ÷ 3 = 200
6,000 ÷ 3 = 2,000

Three zeroes — Three zeroes




**So,** each girl got 2,000 coins.

**Remember**

6 ÷ 3 = 2
6 is called the dividend
3 is called the divisor
2 is called the quotient

## Example 1

**Use patterns to find the quotient.**

a. 8 ÷ 2 = ____
80 ÷ 2 = ____
800 ÷ 2 = ____
8,000 ÷ 2 = ____

b. 15 ÷ 5 = ____
150 ÷ 5 = ____
1,500 ÷ 5 = ____
15,000 ÷ 5 = ____

c. 20 ÷ 4 = ____
200 ÷ 4 = ____
2,000 ÷ 4 = ____
20,000 ÷ 4 = ____

### Solution

a. 4
40
400
4,000

b. 3
30
300
3,000

c. 5
50
500
5,000

**Notes for parents :**

- Your child may only look at the place with the highest value and try to divide. For example, with 2,400 ÷ 3, he/she may try to solve 2 ÷ 3 instead of 24 ÷ 3.
- Your child may be confused by how many zeroes to put in a quotient, especially when the basic fact includes a zero. For example, the basic fact for 2,000 ÷ 4 is 20 ÷ 4 = 5. The quotient is 500 since there are two other zeroes in the dividend.

## Example 2

Write the basic fact that you can use to solve these problems. Then solve each problem.

| | Problem | Basic Fact | Quotient |
|---|---|---|---|
| a. | 90 ÷ 3 | | |
| b. | 160 ÷ 2 | | |
| c. | 5,500 ÷ 5 | | |

### Solution

| | Problem | Basic Fact | Quotient |
|---|---|---|---|
| a. | 90 ÷ 3 | 9 ÷ 3 = 3 | 30 |
| b. | 160 ÷ 2 | 16 ÷ 2 = 8 | 80 |
| c. | 5,500 ÷ 5 | 55 ÷ 5 = 11 | 1,100 |

## Example 3

Complete each missing number.

a. 140 ÷ 7 = ☐ b. ☐ ÷ 3 = 100 c. 280 ÷ ☐ = 40

### Solution

a. 20 b. 300 c. 7

### Check your understanding

1. Use patterns and place value to find each quotient.

a. 8 ÷ 4 = ☐
80 ÷ 4 = ☐
800 ÷ 4 = ☐
8,000 ÷ 4 = ☐

b. 18 ÷ 9 = ☐
180 ÷ 9 = ☐
1,800 ÷ 9 = ☐
18,000 ÷ 9 = ☐

c. 3 ÷ 3 = ☐
30 ÷ ☐ = 10
☐ ÷ 3 = 100
3,000 ÷ 3 = ☐

2. How can you use 16 ÷ 4 = 4 to help you find 160 ÷ 4?

Notes for parents :

- Make sure your child recognized that the number of zeroes in the dividend is the same as the number of zeroes in the quotient unless the basic fact has a zero in it.

Exercise 35

on lesson 11

# Patterns and Place Value in Division

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Use patterns and place value to find each quotient.

| | | |
|---|---|---|
| a. $6 \div 2 =$ ☐ | b. $18 \div 3 =$ ☐ | c. $42 \div 6 =$ ☐ |
| $60 \div 2 =$ ☐ | $180 \div 3 =$ ☐ | $420 \div 6 =$ ☐ |
| $600 \div 2 =$ ☐ | $1{,}800 \div 3 =$ ☐ | $4{,}200 \div 6 =$ ☐ |
| $6{,}000 \div 2 =$ ☐ | $18{,}000 \div 3 =$ ☐ | $42{,}000 \div 6 =$ ☐ |
| d. $7 \div 7 =$ ☐ | e. $32 \div 8 =$ ☐ | f. $63 \div 9 =$ ☐ |
| $70 \div 7 =$ ☐ | $320 \div 8 =$ ☐ | $630 \div 9 =$ ☐ |
| $700 \div 7 =$ ☐ | $3{,}200 \div 8 =$ ☐ | $6{,}300 \div 9 =$ ☐ |
| $7{,}000 \div 7 =$ ☐ | $32{,}000 \div 8 =$ ☐ | $63{,}000 \div 9 =$ ☐ |

**2.** **Division Patterns** Label the parts in the equation using the words divisor, dividend, and quotient. Then, look for patterns to complete the remaining problems. The first problem in the table is an example that is filled in for you.

| Equation | Basic (Related) Fact | Quotient |
|---|---|---|
| $600 \div 3$ | $6 \div 3 = 2$ | 200 |
| $150 \div 5$ | | |
| $1{,}200 \div 6$ | | |
| $200 \div 4$ | | |
| $700 \div 7$ | | |
| $6{,}400 \div 8$ | | |
| $4{,}500 \div 9$ | | |
| $270 \div 3$ | | |

**3.** Find the quotient. Use basic facts and place value patterns to help you divide.

a. 4 ones ÷ 2 = _____ ones
4 ÷ 2 = _____
4 tens ÷ 2 = _____ tens
40 ÷ 2 = _____
4 hundreds ÷ 2 = _____ hundreds
400 ÷ 2 = _____
4 thousands ÷ 2 = _____ thousands
4,000 ÷ 2 = _____

b. 3 ones ÷ 3 = _____ ones
3 ÷ 3 = _____
3 tens ÷ 3 = _____ tens
30 ÷ 3 = _____
3 hundreds ÷ 3 = _____ hundreds
300 ÷ 3 = _____
3 thousands ÷ 3 = _____ thousands
3,000 ÷ 3 = _____

c. 24 ones ÷ 8 = _____ ones
24 ÷ 8 = _____
24 tens ÷ 8 = _____ tens
240 ÷ 8 = _____
24 hundreds ÷ 8 = _____ hundreds
2,400 ÷ 8 = _____
24 thousands ÷ 8 = _____ thousands
24,000 ÷ 8 = _____

d. 42 ones ÷ 6 = _____ ones
42 ÷ 6 = _____
42 tens ÷ 6 = _____ tens
420 ÷ 6 = _____
42 hundreds ÷ 6 = _____ hundreds
4,200 ÷ 6 = _____
42 thousands ÷ 6 = _____ thousands
42,000 ÷ 6 = _____

**4.** Find each quotient.

a. 27 ÷ 3 = _____
b. 54 ÷ 9 = _____
c. 120 ÷ 6 = _____
d. 720 ÷ 8 = _____
e. 180 ÷ 2 = _____
f. 450 ÷ 5 = _____
g. 3,600 ÷ 6 = _____
h. 4,900 ÷ 7 = _____
i. 3,200 ÷ 4 = _____
j. 6,400 ÷ 8 = _____
k. 4,000 ÷ 5 = _____
l. 2,100 ÷ 7 = _____
m. 30,000 ÷ 6 = _____
n. 81,000 ÷ 9 = _____
o. 24,000 ÷ 4 = _____

**5.** Complete the missing numbers.

a. 18 ÷ ☐ = 6
b. 120 ÷ ☐ = 20
c. 630 ÷ ☐ = 90
d. 70 ÷ ☐ = 10
e. ☐ ÷ 3 = 30
f. ☐ ÷ 4 = 700
g. 1,600 ÷ ☐ = 800
h. 3,200 ÷ ☐ = 400
i. 4,500 ÷ ☐ = 500
j. ☐ ÷ 9 = 9,000
k. ☐ ÷ 3 = 8,000
l. ☐ ÷ 1 = 9,000
m. ☐ ÷ 5 = 5,000
n. ☐ ÷ 6 = 8,000
o. ☐ ÷ 7 = 6,000

**6. Solve the following problems.**

a. Mrs. Farida's class is 60 minutes long. She wants to divide her class time into 3 equal periods. How long will each period be ?

b. Bassem is reading a book of 180 pages. If he reads 9 pages per day, , how long will it take him to finish the book ?

c. 📖 There were 540 crayons in a large bin. Students were asked to put 9 crayons in a small box for each student to use.
How many small boxes will students need in order to complete this task ?

d. At a primary school, the students collected 3,000 pounds as a donation to kids Hospital. Each student donated 5 pounds. How many students donated ?

e. 📖 **Riding the Metro**
There are 8,100 people that need to get to work on Monday morning at 7:00 a.m. They all want to take the metro to work. There are 9 cars on each metro. If 90 people can fit in each car, can all the people take the same metro to work ? Explain your thinking using numbers, words and symbols.

f. A factory produced 54,000 pieces of toys in 9 months. The factory produced the same number of pieces each month.
How many pieces did the factory produce per month ?

## Challenge

**7.** A class wants to plant 450 flowers for Earth Day, in equal rows. If they plant 50 rows, how many flowers are in each row ?

# Multiple Choice Questions

Choose the correct answer.

**1.** $80 \div 2 =$ _____

A. 4 B. 40
C. 400 D. 160

**2.** $400 \div 8 =$ _____

A. 5 B. 50
C. 500 D. 5,000

**3.** $160 \div 4 =$ _____

A. 4 B. 40
C. 400 D. 4,000

**4.** $3{,}000 \div 3 =$ _____

A. 1 B. 10
C. 100 D. 1,000

**5.** $4{,}200 \div 7 =$ _____

A. 6 B. 60
C. 600 D. 6,000

**6.** $2{,}000 \div 5 =$ _____

A. 4 B. 40
C. 400 D. 4,000

**7.** $63{,}000 \div 9 =$ _____

A. 7 B. 70
C. 700 D. 7,000

**8.** $56 \div 7 =$ _____

A. 8 B. 80
C. 800 D. 8,000

**9.** $320 \div$ _____ $= 40$

A. 8 B. 80
C. 800 D. 8,000

**10.** _____ $\div 7 = 300$

A. 21 B. 210
C. 2,100 D. 21,000

**11.** 63 tens $\div 7 =$ _____ tens

A. 9 B. 90
C. 900 D. 9,000

**12.** 27 hundreds $\div 9 =$ _____

A. 30 hundreds B. 3 tens
C. 30 tens D. 300 tens

**13.** _____ tens $\div 8 = 5$ tens

A. 4 B. 40
C. 400 D. 4,000

**14.** _____ hundreds $\div 5 = 20$ tens

A. 1 B. 10
C. 100 D. 1,000

Lesson
12

# The Area Model and Division

## Learn



Bassem's family drove 615 kilometers in 3 days. They drove the same number of kilometers every day.

**How many kilometers did they drive per day ?**

**Divide :** $615 \div 3$

**You can use an area model for division.**

**Step 1**

Draw a long rectangle and write 3 on the smaller left side of the rectangle.

**Think**

$615 = 600 + 15$

| 3 | |
|---|---|

**Step 2**

Since $3 \times 200 = 600$ , then 600 is a multiple of 3 which is the divisor in this problem.

Draw a vertical line inside the rectangle. Write $3 \times 200 = 600$ inside the section of the model and 200 underneath.

| 3 | $3 \times 200 = 600$ | |
|---|---|---|
| | 200 | |

**Remember**

Area of rectangle = length × width

**Step 3**

Since $3 \times 5 = 15$ , then 15 is a multiple of 3 which is the divisor in this problem. Write $3 \times 5 = 15$ inside the empty section of the model and 5 underneath.

| 3 | $3 \times 200 = 600$ | $3 \times 5 = 15$ |
|---|---|---|
| | 200 | 5 R 0 |

**Notes for parents :**

- Your child may get confused with how many zeroes to place at the end of a product. For example, he/she may write $7 \times 3{,}000 = 2{,}100$ instead of $7 \times 3{,}000 = 21{,}000$. Your child may also write $4 \times 500 = 200$ instead of $4 \times 500 = 2{,}000$

Step 4

Check your answers and there is no left over.

Add the areas : 600 + 15 = 615 R 0 (no remainder)

Add the sides : 200 + 5 = 205

then : 615 ÷ 3 = 205

They drove 205 kilometers per day for 3 days.



## Example

**Draw an area model to solve each problem.**

a. 69 ÷ 3 b. 825 ÷ 4 c. 3,600 ÷ 6

**Remember**

Check the left over in each problem.

## Solution

a. Think : 69 = 60 + 9

| 3 | 3 × 20 = 60 | 3 × 3 = 9 |
|---|---|---|
| | 20 | 3 |

Add the areas : 60 + 9 = 69 R 0 (no remainder)

Add the sides : 20 + 3 = 23

So, 69 ÷ 3 = 23

b. Think : 825 = 800 + 25 , 25 = 24 + 1

| 4 | 4 × 200 = 800 | 4 × 6 = 24 |
|---|---|---|
| | 200 | 6 R1 |

Add the areas : 800 + 24 + R 1 = 825

Add the sides : 200 + 6 R 1 = 206 R 1

So, 825 ÷ 4 = 206 R 1

c.

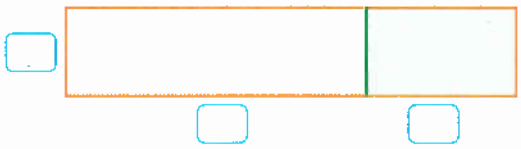
| 6 | 6 × 600 = 3,600 |
|---|---|
| | 600 |

So, 3,600 ÷ 6 = 600 (no remainder)

## Check your understanding

**Use the area to model the following problem.**

**535 ÷ 5**



**Notes for parents :**

- Your child may have difficulty determining which multiples to use to start decomposing a dividend when using an area model. It is most effective and efficient to start with multiplying the divisor by 10 , 100 or 1,000. For example, for 256 ÷ 8, it is helpful to begin with 8 × 10 = 80 and to work up to 256.

Exercise
36
on lesson 12

# The Area Model and Division

REMEMBER UNDERSTAND APPLY PROBLEM SOLVING From the school book

**1.** Use the area model to solve each of the following.

a. $64 \div 2$

b. $85 \div 4$

c. $217 \div 5$

d. $159 \div 3$

e. $636 \div 6$

f. $484 \div 8$

**2.** Use the area model to solve the problems. Show your work.

a. $48 \div 4$

b. From the school book $67 \div 3$

c. $613 \div 3$

d. $810 \div 9$

e. 📖 $455 \div 4$

f. 📖 $3{,}200 \div 8$

**3. Solve each problem using an area model.**

a. Sylvia is sharing her muffines. If she shares 63 muffines among 3 groups of people , what is the share of each group ?



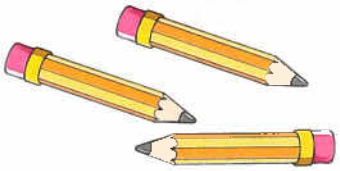
b. 📖 An organization donated 89 books to a school. The books will be shared among 6 classrooms. How many books will each classroom get ?



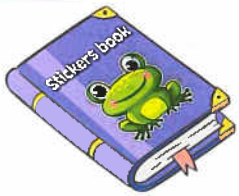
c. 📖 Rashida saved 545 L.E. to buy a toy car. She did this by saving 5 L.E. every day she worked around her neighborhood. How many days did she have to work to save enough money to buy a toy car ?



d. 🕮 There are 864 pencils. The pencils have to be divided equally among 4 classrooms. How many pencils will each classroom get ?



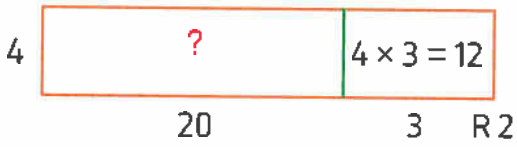
e. 🕮 Amir bought a book of stickers. There were 92 stickers in the book. He wanted to give them to 4 of his friends. How many stickers will each of his friends get ?




f. 🕮 **Writing About Math.** There are 492 cars that need to park at the stadium. The stadium has 4 parking lots. The stadium wants the same number of cars to park in each lot. How could you use the previous problem to help you solve 492 ÷ 4 ? Use words, numbers and symbols to explain your thinking.

## 4. Critical thinking.

a. Which choice best completes the area model to find 94 ÷ 4 ?




A. 4 × 2 = 8

B. 4 × 20 = 80

C. 20 + 4 = 24

D. 4 × 16 = 20

**Complete :** 94 ÷ 4 = ___ ___

b. The divisor is 6 and the dividend is 752. **Divide.**

# Multiple Choice Questions

**Choose the correct answer.**

**1.** In the opposite area model, which choice best represents the problem?

| 5 | 5 × 100 = 500 | 5 × 3 = 15 |
|---|---|---|
| | 100 | 3 R 2 |

A. 515 ÷ 5 B. 502 ÷ 5

C. 512 ÷ 5 D. 517 ÷ 5

**2.** Which area model best represents 828 ÷ 4?

A.

| 4 | 4 × 100 = 400 | 4 × 7 = 28 |
|---|---|---|
| | 100 | 7 |

B.

| 8 | 8 × 100 = 800 | 8 × 3 = 24 |
|---|---|---|
| | 100 | 3 R 4 |

C.

| 4 | 4 × 200 = 800 | 4 × 7 = 28 |
|---|---|---|
| | 200 | 7 |

D.

| 4 | 4 × 200 = 800 | 4 × 7 = 28 |
|---|---|---|
| | 800 | 28 |

**3.** Which number best completes the area model to find 148 ÷ 6?

| 6 | ? | 6 × 4 = 24 |
|---|---|---|
| | 4 | R4 |

The value of ? is _____

A. 6 × 2 = 12 B. 6 × 20 = 120

C. 20 + 4 = 24 D. 20 + 4 + 2 = 26

**4.** 93 ÷ 4 = _____

A. 25 R 3 B. 23 R 1

C. 24 R 2 D. 21 R 3

**5.** 372 ÷ 6 = _____

A. 61 R 1 B. 61 R 5

C. 62 D. 61

**6.** A chicken farmer uses egg cartons made from recycled material. If 6 eggs fit into each carton, how many cartons will he need for 312 eggs?

A. 50 cartons B. 51 cartons

C. 52 cartons D. 53 cartons

Lessons
**13&14**

# • The Partial Quotients Algorithm
# • The Standard Division Algorithm



## Learn 1 The partial quotients algorithm

Bassem packs the cakes in groups of 4
to sell in his market.

If an order calls for 898 cakes,
**how many packages will Bassem need ?**



**Divide :** 898 by 4

**1.** Draw a line as shown in the figure.

Divisor → 4 | 8 9 8 ← Dividend

**2.** Look at the dividend, start from the left
there are 8 in the hundreds place = 800
- 800 is a multiple of 4 because 4 × 200 = 800
- Then write 200 to the right of the line (part of the quotient).

4 | 8 9 8 | 200

**3.** Write 800 under the dividend and subtract from 898, you will get 98.

4 | 8 9 8 | 200
− 8 0 0
9 8

**4.** Write a multiple of 4 that is under 98 and subtract (note 4 × 10 = 40), then write 10 to the right of the line as a part of quotient.

4 | 8 9 8 | 200
− 8 0 0
9 8 | 10
− 4 0
5 8



**Notes for parents :**

- Remind your child to start division from the left.

**5.** Repeat writing a multiple of 4 under 58 and subtract (note $4 \times 10 = 40 < 58$) and write 10 as a part of quotient to the right of the line.

$$\begin{array}{r|l} 898 & 200 \\ -\,800 & \\ \hline 98 & 10 \\ -\,40 & \\ \hline 58 & 10 \\ -\,40 & \\ \hline 18 & \end{array}\quad 4$$

**6.** Write a multiple of 4 that is close to 18 (note $4 \times 4 = 16 < 18$), then write 16 under 18 and subtract and write 4 as a part of quotient to the right of the line.

- Then the quotient = 200 + 10 + 10 + 4
  = 224
- Then $898 \div 4 = 224$ and the remainder = 2

$$\begin{array}{r|l} 898 & 200 \\ -\,800 & \\ \hline 98 & 10 \\ -\,40 & \\ \hline 58 & 10 \\ -\,40 & \\ \hline 18 & 4 \\ -\,16 & \\ \hline 2 & \end{array}\quad 4$$

remainder

**Note that**

4 does not divide 898 equally because there is a remainder = 2

**Notes**

- Always the remainder must be less than the divisor.
- The dividend = divisor × quotient + remainder

## Example 1

**Divide.**

a. $78 \div 6$

b. $658 \div 3$

c. $8{,}785 \div 7$

**Solution**

a.
$$\begin{array}{r|l} 78 & 10 \\ -\,60 & \\ \hline 18 & 3 \\ -\,18 & \\ \hline 0 & \end{array}\quad 6$$

$78 \div 6 = 10 + 3 = 13$

b.
$$\begin{array}{r|l} 658 & 200 \\ -\,600 & \\ \hline 58 & 10 \\ -\,30 & \\ \hline 28 & 9 \\ -\,27 & \\ \hline 1 & \end{array}\quad 3$$

$658 \div 3 = 200 + 10 + 9 = 219$ and the remainder = 1

c.
$$\begin{array}{r|l} 8,785 & 1,000 \\ -\,7,000 & \\ \hline 1,785 & 200 \\ -\,1,400 & \\ \hline 385 & 50 \\ -\,350 & \\ \hline 35 & 5 \\ -\,35 & \\ \hline 0 & \end{array}\quad 7$$

$8{,}785 \div 7$
$= 1{,}000 + 200 + 50 + 5 = 1{,}255$

**Notes for parents :**

- Your child may use any multiple of divisor to divide.

## Learn 2 Estimating quotients

- Sometimes you only need to find an estimation.
- One way to estimate quotients is to substiute numbers that make mental math simpler.

For Example :

To estimate the quotient of 257 ÷ 6 ,do as follows :

### First

The dividend 257 is between 240 and 300.
[Note : 240 and 300 are multiples of the divisor 6].

### Second

240 ÷ 6 = 40 and 300 ÷ 6 = 50.
So, the quotient of 257 ÷ 6 is between 40 and 50.

### Example 2

**Estimate the quotient of 63 ÷ 4**

### Solution

The dividend 63 is between 40 and 80.
,then 40 ÷ 4 = 10 and 80 ÷ 4 = 20
,then the quotient is between 10 and 20.

### Check your understanding

**1. Use the partial quotient algorithm to divide.**

a. 52 ÷ 3

b. 783 ÷ 5

c. 7,320 ÷ 6

**2. Estimate each quotient.**

a. 37 ÷ 4

b. 587 ÷ 2

c. 762 ÷ 9

- Discuss the purpose of rounding versus using basic facts to estimate by asking your child which method makes the problem easier to calculate mentally. Demonstrate how using a basic fact makes estimating easier for 257 ÷ 6 by having your child try to find each of these quotients mentally : 300 ÷ 6 , 240 ÷ 6.
- Make sure your child use basic facts and place-value pattern to divide.

## Learn 3 The standard division algorithm

Students in the third, fourth and fifth grades made 525 origami animals to display in the library.
If each grade made the same number of animals, **how many animals did each grade make ?**



Origami animals

Origami is the Japanese art of folding paper into different shapes.

**Divide :** $525 \div 3$ **or** $3\overline{)525}$

### Step 1

Divide the hundreds.

**Divide 5 ÷ 3**

```
  1
3 | 5 2 5   Multiply 1 × 3
  - 3       Subtract 5 − 3
  ---
    2       Compare 2 < 3
```

### Step 2

Bring down the tens. Divide the tens.

```
  1 7
3 | 5 2 5   Bring down the tens.
  - 3       Divide 22 ÷ 3
  ---
    2 2     Multiply 7 × 3
  - 2 1     Subtract 22 − 21
  -----
      1     Compare 1 < 3
```

### Step 3

Bring down the ones.
Divide the ones.

```
  1 7 5
3 | 5 2 5   Bring down the ones.
  - 3       Divide 15 ÷ 3
  ---
    2 2
  - 2 1
  -----
      1 5   Multiply 5 × 3
    - 1 5   Subtract 15 − 15
    -----
        0   Compare 0 < 3
```

**Remember**

After you divide the hundreds, tens or ones place, the remainder should always be less than the divisor.

*Check*
*Multiply*
$3 \times 175 = 525$
*The product equals the dividend*

So, each grade made 175 origami animals.

## Other Examples :

### a. With a remainder

```
    1 6 8 R 4
5 | 8 4 4
  - 5
  -----
    3 4
  - 3 0
  -----
      4 4
    - 4 0
    -----
        4   ← 4 is less than 5, so it is the remainder.
```

Check : $168 \times 5 = 840$, then add the remainder : $840 + 4 = 844$

### b. Zero in the dividend

```
    1 1 7
6 | 7 0 2
  - 6
  -----
    1 0
  - 6
  -----
      4 2
    - 4 2
    -----
        0
```

Check : $117 \times 6 = 702$

**MATH IDEA**

**The order of division is as follows :**

Divide
Multiply
Subtract
Compare
Bring down

Repeat this order until the division is complete.

**Notes for parents :**

- To help your child remember all steps in the division algorithm, let him/her use the following memoric or make up one of his/her own: Don't Make Silly Careless Blunders (Divide. Multiply. Subtract. Compare. Bring down).

## Example 3

**Divide : 1,765 ÷ 4**

### Solution

Steps : Divide , multiply , subtract , compare , bring down.

**Step 1**

```
  04
4|1,765
 -16
  1
```

Divide 1 ÷ 4
1 < 4
then write 0
over 1 and divide
17 ÷ 4
Subtract 17 – 16
Compare 1 < 4

**Step 2**

```
  044
4|1,765
 -16↓
  16
 -16
   0
```

Bring down the tens
Bring down 6
Divide 16 ÷ 4
Multiply 4 × 4
Subtract 16 – 16
Compare 0 < 4

**Step 3**

```
  0441
4|1,765
 -16↓
  16
 -16↓
   05
    4
    1
```

Bring down the ones
Bring down 5
Divide 5 ÷ 4
Multiply 1 × 4
Subtract 5 – 4
Compare 1 < 4
the remainder = 1

**then, 1,765 ÷ 4 = 441 R 1**

## Example 4

**Divide : 432 ÷ 4**

### Solution

[Zero in the quotient]

**Step 1**

Divide the 4 hundreds.

```
  1
4|432
 -4
  0
```

**Step 2**

Bring down the 3 tens.
Divide the 3 tens.

```
  10
4|432
 -4↓
  03
 -0
  3
```

3 < 4
, so write a 0
in the quotient.

**Step 3**

Bring down the 2 ones. Divide the 32 ones.

```
  108
4|432
 -4↓
  03
 -0↓
  32
 -32
   0
```

**then, 432 ÷ 4 = 108**

## Check your understanding

**Divide.**

a. 525 ÷ 5

b. 685 ÷ 4

- Remind your child of the division algorithm : divide, multiply, subtract, compare and bring down.
- Remind your child of including the remainder as a part of the answer.

# Exercise 37

on lessons 13&14

- The Partial Quotients Algorithm
- The Standard Division Algorithm

REMEMBER UNDERSTAND APPLY PROBLEM SOLVING From the school book

**1.** Use the partial quotient algorithm to divide.

a. $72 \div 4$

b. $517 \div 4$

c. $244 \div 6$

d. $897 \div 4$

e. $590 \div 5$

f. $892 \div 4$

g. $925 \div 6$

h. $1{,}216 \div 3$

i. $7{,}830 \div 5$

**2.** Complete to estimate the quotient.

a. $72 \div 3$

The dividend 72 is between 60 and 90, then $60 \div 3 =$ ____ , $90 \div 3 =$ ____

, then the quotient is between ____ and ____

b. $524 \div 4$

The dividend 524 is between 400 and 800 , then $400 \div$ ____ = ____

, $800 \div$ ____ = ____

, then the quotient is between ____ and ____

c. 735 ÷ 2

The dividend 735 is between ___ and ___, then ___ ÷ 2 = ___

, ___ ÷ 2 = ___

, then the quotient is between ___ and ___

d. 7,462 ÷ 5

The dividend 7,462 is between ___ and ___, then ___ ÷ ___ = ___

, ___ ÷ ___ = ___

, then the quotient is between ___ and ___

**3.** Estimate each quotient.

a. 632 ÷ 8 = ___ | b. 312 ÷ 4 = ___ | c. 762 ÷ 9 = ___ | d. 495 ÷ 6 = ___

e. 536 ÷ 8 = ___ | f. 3,748 ÷ 2 = ___ | g. 4,681 ÷ 3 = ___ | h. 8,642 ÷ 5 = ___

**4.** Copy and complete.

a.
$$\begin{array}{r} \square 8 \\ 3\overline{)\,5\;4} \\ -\;3\phantom{\;4} \\ \hline 2\;\square \\ -\;2\;4 \\ \hline 0 \end{array}$$

b.
$$\begin{array}{r} 2\;\square\;\text{R}1 \\ 4\overline{)\,8\;5} \\ -\;\square\phantom{\;5} \\ \hline 0\;\square \\ -\;\;4 \\ \hline \square \end{array}$$

c.
$$\begin{array}{r} \square 1\;\text{R}3 \\ 5\overline{)\,5\;8} \\ -\;\square\phantom{\;8} \\ \hline \square 8 \\ -\;\;5 \\ \hline \square \end{array}$$

d.
$$\begin{array}{r} \square\square\;\text{R}\square \\ 3\overline{)\,4\;1} \\ -\;3\phantom{\;1} \\ \hline \square\square \\ -\;\;\square \\ \hline 2 \end{array}$$

**5.** Solve the problems using the standard algorithm.

a. 454 ÷ 3 | b. 192 ÷ 6 | c. 778 ÷ 2

Work area

d. 240 ÷ 6 | e. 414 ÷ 4 | f. 761 ÷ 6

Work area

g. 368 ÷ 3

h. 1,304 ÷ 4

i. 4,858 ÷ 4

Work area

j. 3,650 ÷ 5

k. 1,500 ÷ 5

l. 5,765 ÷ 5

Work area

6. If you had 52 sandwiches to put into 4 lunch boxes.
, how many sandwiches would be put into each box if you divided them equally ?



7. A train has 784 seats for passengers. If there are 7 cars on the train and each car has the same number of seats.
, how many passengers can sit in each car ?
Solve the problem using at least two different strategies.



8. There are 154 tourists divided into equal groups. If each group has 7 tourists, how many groups will there be ?

9. Nermine takes the train to the city and back 4 times each month. She travels a total of 376 km per month. How far away is the city ?

10. Sami has 960 beads in 8 different colors to make jewelry. He has the same number of each color. How many beads of each color does Sami have ?

## Challenge

11. Youssef divided a number between 55 and 60 by 5. The remainder was 4.
What number did Youssef divide ?

# Multiple Choice Questions

Choose the correct answer.

**1.** $366 \div 6 =$ _____

A. 60 B. 61
C. 64 D. 71

**2.** $74 \div 4 = 18$ R _____

A. 0 B. 1
C. 2 D. 3

**3.** $36 \div 2 = 18$ R _____

A. 0 B. 1
C. 2 D. 3

**4.** $1{,}836 \div 3$ is closer to _____

A. 6 B. 60
C. 600 D. 6,000

**5.** $7{,}158 \div 3$ is closer to _____

A. 20 B. 2,000
C. 3,000 D. 40,000

**6.** $736 \div 4$ is closer to _____

A. 10 B. 100
C. 200 D. 1,000

**7.** Sara has 270 pieces of ribbon. She wants to give an equal number of them to 8 of her friends. How many pieces of ribbon will each friend receive and how many will be left over?

A. Each friend will receive 32 pieces. There will be 14 pieces left over.
B. Each friend will receive 34 pieces. There will be 2 pieces left over.
C. Each friend will receive 33 pieces. There will be 6 pieces left over.
D. Each friend will receive 33 pieces. There will be 0 pieces left over.

**8.** Marawan divides $617 \div 5$ using the partial quotients algorithm. He uses 100 as the quotient on the first step. What is his next step?

$$5 \overline{)\,6\;1\;7\,} \;100$$

A. Multiply 100 by 617 and subtract the result from 5.
B. Multiply 100 by 617 and add the result to 5.
C. Multiply 100 by 5 and subtract the result from 617.
D. Multiply 100 by 5 and add the result to 617.

Lesson
# 15

# Division and Multiplication



## Learn The relation between multiplication and division




There are 736 crayons wanted to be divided among boxes. Each box holds 4 crayons. How many boxes are needed ?

**Divide :** 736 ÷ 4

Estimation can help decide whether an answer is reasonable. Division can help solve the problem.

Multiplication can help check the answer.

*Known that*

Multiplication and division by the same number are opposite operations or inverse operations. One operation undoes the other.

### First Estimate the quotient

The dividend 736 is between 400 and 800



**Note that**

400 and 800 are multiples of 4

**then :** 400 ÷ 4 = 100 and 800 ÷ 4 = 200

**So,** the quotient is between 100 and 200

### Second Divide 736 ÷ 4

The number of boxes = 736 ÷ 4

= 184 boxes

The answer is reasonable.

### Third Multiply to check

184 × 4 = 736

**So, the needed boxes are 184 boxes.**

Algorithm strategy

$$\begin{array}{r} 184 \\ 4\overline{)736} \\ -\,4\phantom{36} \\ \hline 33\phantom{6} \\ -\,32\phantom{6} \\ \hline 16 \\ -\,16 \\ \hline 00 \end{array}$$

Partial strategy

$$\begin{array}{r} 184 \\ \times\quad 4 \\ \hline 16 \\ +320 \\ +400 \\ \hline 736 \end{array}$$

**Notes** for parents :

- Ask your child to tell you what is the relation between multiplication and division.

## Example 1

**Write the division problem that matches the multiplication problem.**

a.
$$\begin{array}{r} 34 \\ \times\ 2 \\ \hline 8 \\ +60 \\ \hline 68 \end{array}$$

b.
$$\begin{array}{r} 518 \\ \times\ 3 \\ \hline 24 \\ +\ 30 \\ +1{,}500 \\ \hline 1{,}554 \end{array}$$

c.
$$\begin{array}{r} 908 \\ \times\ 7 \\ \hline 56 \\ +\ 0 \\ +6{,}300 \\ \hline 6{,}356 \end{array}$$

### Solution

a. $68 \div 2 = 34$

b. $1{,}554 \div 3 = 518$

c. $6{,}356 \div 7 = 908$

## Example 2

**Write the division problem that matches the multiplication problem.**

a. $14 \times 2 = 28$

b. $161 \times 5 = 805$

c. $105 \times 7 = 735$

d. $320 \times 6 = 1{,}920$

### Solution

a. $28 \div 2 = 14$

b. $805 \div 5 = 161$

c. $735 \div 7 = 105$

d. $1{,}920 \div 6 = 320$

## Check your understanding

**Write the division problem that matches the multiplication problem.**

$$\square \div \square = \square$$

$$\begin{array}{r} 27 \\ \times\ 6 \\ \hline 42 \\ +120 \\ \hline 162 \end{array}$$

- Ask your child to explain how can he/she uses the relation between multiplication and division to solve multiplication and division problems.

Exercise
# 38
on lesson 15

# Division and Multiplication

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Write the division problem that matches the multiplication problem.

a.
$$\begin{array}{r} 48 \\ \times\ \ 6 \\ \hline 48 \\ +240 \\ \hline 288 \end{array}$$
$\square \div \square = \square$

b.
$$\begin{array}{r} 75 \\ \times\ \ 4 \\ \hline 20 \\ +280 \\ \hline 300 \end{array}$$
$\square \div \square = \square$

c.
$$\begin{array}{r} 162 \\ \times\ \ 8 \\ \hline 16 \\ +\ 480 \\ +\ 800 \\ \hline 1,296 \end{array}$$
$\square \div \square = \square$

d.
$$\begin{array}{r} 615 \\ \times\ \ 9 \\ \hline 45 \\ +\ 90 \\ +5,400 \\ \hline 5,535 \end{array}$$
$\square \div \square = \square$

**2.** Write the division problem that matches the multiplication problem.

a. $53 \times 6 = 318$
$\square \div \square = \square$

b. $623 \times 3 = 1{,}869$
$\square \div \square = \square$

c. $325 \times 4 = 1{,}300$
$\square \div \square = \square$

d. $505 \times 5 = 2{,}525$
$\square \div \square = \square$

e. $42 \times 7 = \square$
$\square \div \square = \square$

f. $93 \times 9 = \square$
$\square \div \square = \square$

g. $173 \times 6 = \square$
$\square \div \square = \square$

h. $349 \times 8 = \square$
$\square \div \square = \square$

**3. Place Value and the Quotient : First, circle the problems you think will have a quotient with fewer digits than the dividend. Then, estimate the quotient and solve each problem using the standard algorithm for division. Think about where to place the first digit in the quotient.**

a. 214 ÷ 2

The quotient is between _____ and _____

**Solution :** _____

b. 834 ÷ 3

The quotient is between _____ and _____

**Solution :** _____

c. 346 ÷ 5

The quotient is between _____ and _____

**Solution :** _____

d. 562 ÷ 8

The quotient is between _____ and _____

**Solution :** _____

e. 1,266 ÷ 6

The quotient is between _____ and _____

**Solution :** _____

f. 1,632 ÷ 4

The quotient is between _____ and _____

**Solution :** _____

g. 1,429 ÷ 7

The quotient is between _____ and _____

**Solution :** _____

h. 4,590 ÷ 3

The quotient is between _____ and _____

**Solution :** _____

**4. Solve the following problems. You may use multiplication to check your answer.**

a. 156 ÷ 4 = _____

b. 219 ÷ 3 = _____

c. 27 ÷ 5 = _____

d. 583 ÷ 6 = _____

e. 1,545 ÷ 5 = _____

f. 2,704 ÷ 3 = _____

g. 6,524 ÷ 4 = _____

h. 3,017 ÷ 3 = _____

i. 534 ÷ 6 = _____

j. 8,579 ÷ 9 = _____

# Multiple Choice Questions

**Choose the correct answer.**

**1.** The division equation that matches $126 \times 3 = 378$ is _____

A. $378 - 3 = 126$

B. $378 + 3 = 126$

C. $378 \div 3 = 126$

D. $378 \times 3 = 126$

**2.** Which expression can be used to check the solution of the opposite division problem?

$$\begin{array}{r} 28\text{ R }4 \\ 9\overline{)256} \\ -18\downarrow \\ \hline 76 \\ -72 \\ \hline 4 \end{array}$$

A. $28 \times 9$

B. $28 \times 256$

C. $28 \times 9 + 4$

D. $28 \times 256 + 4$

**3.** In the problem $1{,}866 \div 6$, the quotient is between _____ and _____

A. 100 and 200

B. 200 and 300

C. 300 and 400

D. 400 and 500

**4.** What is the value of ? in the opposite division problem?

$$\begin{array}{r} ? \\ 4\overline{)292} \\ -28\downarrow \\ \hline 12 \\ -12 \\ \hline 0 \end{array}$$

A. 73

B. 73 R 1

C. 73 R 2

D. 73 R 3

**5.** $48 \div 7 =$ _____

A. 6 R 4 B. 6 R 5

C. 6 R 6 D. 7 R 1

**6.** $320 \div 4 =$ _____

A. 80 B. 90

C. 80 R 3 D. 90 R 3

**7.** $2{,}014 \div 2 =$ _____

A. 17 B. 107 C. 1,007 D. 10,007

**8.** $2{,}748 \div 9 =$ _____

A. 304 R 2 B. 304 R 3 C. 305 R 2 D. 305 R 3

Lesson
16

# Solving Challenging Story Problems

Just for Reading



## Learn Solving challenging story problems

Here are some guided steps you may use when solving problems.

- Read to understand
- Plan
- Solve
- Check

### Read to understand

- Read the story loudly more than one time carefully.
- Identify the details and quantities given.
- Identify the hidden question (if exists).
- Search for key words.

### Plan

- Decide the operation (+ , – , × , ÷).
- Decide the strategy you can use to solve the problem.

### Solve

- Solve the hidden question (if exists).
- How can you use the strategy to solve the problem ?

### Check

- How do you know your answer is correct ?
- What other strategy could you use to solve the problem ?



## Example

**Read the following problem carefully. Solve the problem.**

Sandy bought 5 packs of crayons. There are 24 crayons in each of those packs. She also had 6 smaller packs of crayons. There are 12 crayons in each of those.

Sandy wanted to bring all her crayons to school and give them to 8 of her friends.

**How many crayons will each friend get ?**

**Notes** for parents :

- Remind your child that multistep problem is a problem that involves more than one operation.

## Solution

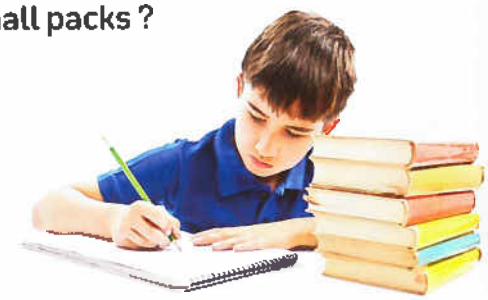
**First hidden questions : How many crayons in the 5 packs ?**

The number of crayons = 5 × 24 = 120 crayons.

Check the results using the standard algorithm strategy

**Second hidden question : How many crayons in the 6 small packs ?**

The number of crayons = 6 × 12 = 72 crayons.



**Third hidden question : How many crayons in all ?**

The number of all crayons = 120 + 72 = 192 crayons.

**The problem : How many crayons will each friend get ?**

The number of crayons = 192 ÷ 8 = 24 crayons.

**Short way :**

$[[5 \times 24] + (6 \times 12)] \div 8 = [120 + 72] \div 8$

$= 192 \div 8 = 24$ crayons

## Check your understanding

**Maged has 293 stickers. Amgad has 5 times as many as Maged. Shady has 699 fewer than Amgad. How many stickers does Shady have ?**

Amgad has = ☐ × ☐ = ☐ stickers.

Shady has = ☐ − ☐ = ☐ stickers.

**Notes for parents :**

- Some word problems have hidden question or questions that must be answered before you can solve the problem. You have to determine what operation to use and what strategies will you use to help you figure out how to solve the problem.

# Unit Seven Assessment




**1.** Write (✓) to the correct answer and (✗) to the incorrect answer.

a. $90 \div 3 = 30$ [ ]

b. $17 \times 4 = 68$ [ ]

c. $40 \times 16 = 640$ [ ]

d. $73 \div 9 = 8$ and the remainder $= 3$ [ ]

e. $7 \times 243 = [7 \times 2] + [7 \times 4] + [7 \times 3]$ [ ]

f. Hany placed 24 plants equally on 8 tables, then the number of plants in each table is 192. [ ]

**2.** Choose the correct answer.

a. _____ $\times 70 = 2{,}800$

A. 40 B. 30 C. 50 D. 60

b. The area model represents $15 \times 6$

What number belongs in rectangle A?

| | 10 | 5 |
|---|---|---|
| 6 | | A |

A. 15 B. 20 C. 30 D. 45

c. $4{,}000 \div 5$ ☐ $2{,}000 \div 5$

A. > B. < C. =

d. $45{,}000 \div$ _____ $= 9{,}000$

A. 5 B. 50 C. 500 D. 5,000

e. $7 \times 102$ is closer to _____

A. 600 B. 700 C. 800 D. 900

f. $120 \div 3 =$ _____

A. 4 B. 40 C. 30 D. 400

**3.** Complete the following.

a. $4 \times 372 = 4 \times$ _____ $+ 4 \times$ _____ $+ 4 \times$ _____

b. $80 \times 50 =$ _____

c. If $2{,}166 \div 6 = 361$, then the divisor is _____, the dividend is _____ and the quotient is _____

d. _____ $\times 30 = 2{,}700$

e. $368 \div 5$, then the quotient is between _____ and _____

f. $7 \times$ _____ $= 7 \times 600 + 7 \times 50 + 7 \times 3$

**4.** Match.

| | | | |
|---|---|---|---|
| a. | $75 \div 5$ | 1. | 450 |
| b. | $30 \times 15$ | 2. | 15 |
| c. | $2 \times 700 + 2 \times 50$ | 3. | $2 \times 75$ |
| d. | $600 \div 4$ | 4. | $2 \times 750$ |

**5.** Find the result. a. $4 \times 742$ b. $20 \times 70$ c. $13 \times 83$

**6.** Divide. a. $3{,}625 \div 4$ b. $1{,}218 \div 6$

**7.** Create an area model to solve the problem.

$23 \times 41 =$ _____

| × | | |
|---|---|---|
| | | |
| | | |

**8.** Use the partial quotient algorithm to divide.

$7{,}425 \div 5$

**9.** A city bus is 1,270 centimeters long. What is the length of 4 city buses?

**10.** A runner covers 4,488 meters in 6 hours. Calculate the distance he covers in one hour.

UNIT 8

# Order of Operations

» **Concept 1 :** Order of Operations



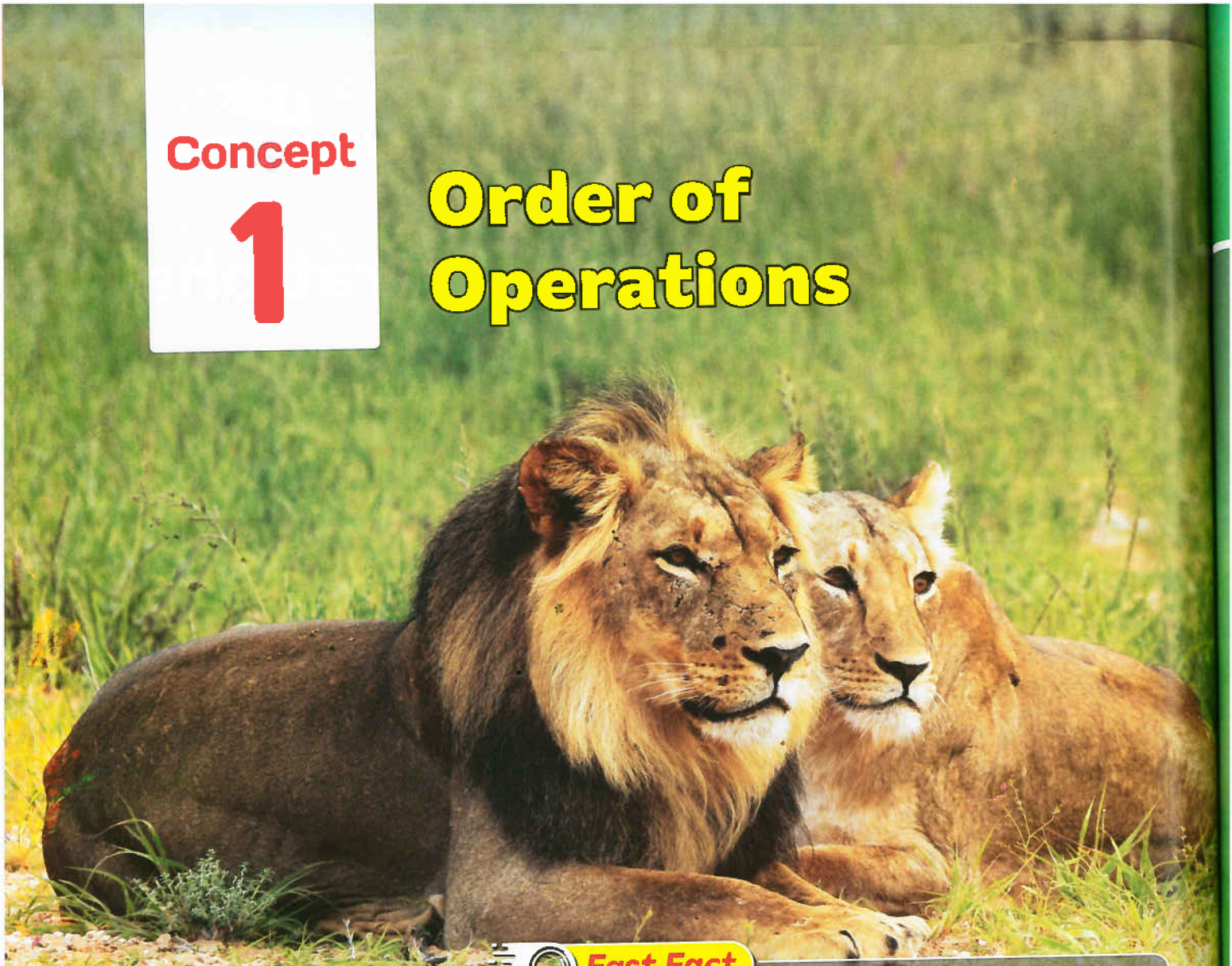
**Fast Fact**

*Rhino is one of the biggest animals in the world which can weigh a massive 2,500 kg - That's the weight of 30 men ! Sadly ! it's estimated that there are only 29,000 rhinos left in the wild, compared to 500,000 at the beginning of the $20^{th}$ century.*

Concept

1

# Order of Operations



**Fast Fact**

*Lion often known as the "King of the jungle". Lions usually lives in groups of 10 or 15 animals. A female lion needs 5 kg of meat a day. A male needs 7 kg or more a day.*

***How many kilograms do 3 females lion and 2 males need a day ?***

| Lesson No. | Lesson Name | Vocabulary Terms | Learning Objectives |
|---|---|---|---|
| Lesson 1 | Problem - Solving Strategies | Efficient - Effective | • Students will apply strategies to solve addition, subtraction, multiplication, and division problems. |
| Lessons 2 to 4 | Which Comes First ? | Order of operations | • Students will use the order of operations to solve equations with two operations. |
| | Order of Operations | Order of operations | • Students will use the order of operations to solve equations with multiple operations. |
| | The Order of Operations and Story Problems | Efficient - Parentheses | • Students will use the order of operations to solve equations with multiple operations.<br>• Students will write and solve an equation to represent a multistep story problem. |

Lesson 1

# Problem - Solving Strategies

Just for Reading

## Learn

- In unit two, you have learned different ways to solve addition and subtraction problems.
- In unit seven, you have learned different ways to solve multiplication and division problems.
- In this lesson, you will practice strategies for addition, subtraction, multiplication and division.




### Problem solving steps

**Understand**

- What are you asked to find ?
- What information will you use ?

**Plan**

- What strategies can you use to solve the problem ?

**Solve**

- How can you use the strategy to solve the problem ?

**Look Back**

- What other strategy could you use ?

**Remember**

**Addition and Subtraction Strategies**

- Estimate.
- Compensation strategy.
- Break up and bridge strategy.
- Add to subtract strategy.
- Regrouping strategy.
- Counting on and counting down strategy.

**Remember**

**Multiplication and Division Strategies**

- Area model strategy.
- Partial product and partial quotient algorithm.
- Standard algorithm.

**Notes for parents :**

- Revise with your child the different strategies for addition, subtraction, multiplication and division.

# Here are some problem-solving strategies

## First Addition

**Find : 255 + 416**

### a. Compensation Strategy

255 + 416

Add 4 to 416 to make 420

$$\begin{array}{r} 255 \\ +\ 420 \\ \hline 675 \\ -\ \ 4 \\ \hline 671 \end{array}$$

Subtract 4 to compensate for adding 4 extra

**So, 255 + 416 = 671**

**In a short way :**

255 + 416 = (255 + 420) – 4 = 675 – 4 = 671

### b. Break up and Bridge Strategy

255 = 200 + 50 + 5

416 = 400 + 10 + 6

255 + 416 =

(200 + 400) + (50 + 10) + (5 + 6)

= 600 + 60 + 11

= 671

### c. Addition Algorithm

$$\begin{array}{r} {\scriptstyle (1)\ \ \ } \\ 2\ 5\ 5 \\ +\ 4\ 1\ 6 \\ \hline 6\ 7\ 1 \end{array}$$

## Second Subtraction

**Find : 254 – 195**

### a. Add to subtract strategy

254 – 195

195 + 5 = 200

200 + 50 = 250

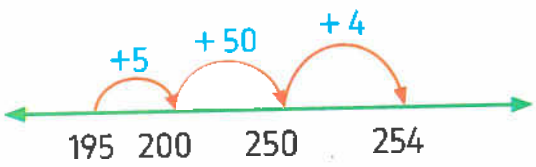
250 + 4 = 254

So, 5 + 50 + 4 = 59

**Then : 254 – 195 = 59**

### b. Counting on using number line with decomposing strategy

254 – 195




5 + 50 + 4 = 59

**So, 254 – 195 = 59**

### c. Subtraction Algorithm

$$\begin{array}{r} {\scriptstyle (1)\ (14)\ (14)} \\ \cancel{2}\ \cancel{5}\ \cancel{4} \\ -\ 1\ 9\ 5 \\ \hline 0\ 5\ 9 \end{array}$$

**Notes for parents :**

- Encourage your child to use a strategy he/she is comfortable with.

## Third Multiplication

**Find : 49 × 56**

### a. Area model

49 = 40 + 9

56 = 50 + 6

| × | 40 | 9 |
|---|---|---|
| 50 | 2,000 | 450 |
| 6 | 240 | 54 |

49 × 56 = 2,000 + 450 + 240 + 54 = 2,744

### b. Partial products

$$\begin{array}{rr} & 56 \\ \times & 49 \\ \hline & 54 \leftarrow (9 \times 6) \\ + & 450 \leftarrow (9 \times 50) \\ + & 240 \leftarrow (40 \times 6) \\ + & 2,000 \leftarrow (40 \times 50) \\ \hline & 2,744 \end{array}$$

### c. Standard Algorithm

$$\begin{array}{rr} & 56 \\ \times & 49 \\ \hline & 504 \\ + & 2,240 \\ \hline & 2,744 \end{array}$$

## Fourth Division

**Find : 896 ÷ 4**

### a. Partial quotient Algorithm

$$\begin{array}{rll} 4 \,|\, 896 & & 200 \\ -\ 800 & & \\ \hline 96 & & 20 \\ -\ 80 & & \\ \hline 16 & & 4 \\ -\ 16 & & \\ \hline 00 & & \end{array}$$

896 ÷ 4 = 200 + 20 + 4 = 224

### b. Division model

| 4 | 4 × 200 = 800 | 4 × 20 = 80 | 4 × 4 = 16 |
|---|---|---|---|
| | 200 | 20 | 4 |

896 ÷ 4 = 200 + 20 + 4 = 224

### c. Standard Algorithm

$$\begin{array}{r|l} & 224 \\ \hline 4 & 896 \\ -\ 8\downarrow & \\ \hline & 09\downarrow \\ -\ & 8\downarrow \\ \hline & 16 \\ -\ & 16 \\ \hline & 00 \end{array}$$

## Example

**Estimate and then solve each problem.**

**Practice using efficient strategies for each operation.**

**a.** 3,423 − 859 = ____ Estimate ____

**b.** 2,156 + 1,372 = ____ Estimate ____

**c.** 4 × 116 = ____ Estimate ____

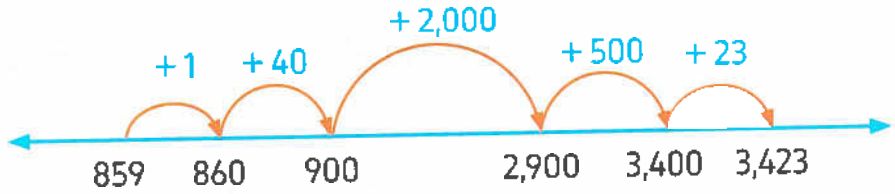
**d.** 2,592 ÷ 8 = ____ Estimate ____

• Ask your child to use different strategies to find the answer in different ways.

## Solution

a. **Estimation :** $3{,}423 - 859 = 3{,}400 - 900 = 2{,}500$

**Solving :**




$3{,}423 - 859 = 1 + 40 + 2{,}000 + 500 + 23 = 2{,}564$

b. **Estimation :** $2{,}156 + 1{,}372 = 2{,}200 + 1{,}400 = 3{,}600$

**Solving :** $2{,}156 + 1{,}372 = 2{,}000 + 100 + 50 + 6$

$+ 1{,}000 + 300 + 70 + 2$

$3{,}000 + 400 + 120 + 8 = 3{,}528$

c. **Estimation :** $4 \times 116 = 4 \times 100 = 400$

**Solving :**

| | 100 | 10 | 6 |
|---|---|---|---|
| 4 | $4 \times 100 = 400$ | $4 \times 10 = 40$ | $4 \times 6 = 24$ |

$4 \times 116 = 400 + 40 + 24 = 464$

d. **Estimation :** $2{,}592 \div 8 = 3{,}000 \div 10 = 300$

**Solving :** $2{,}592 \div 8 =$ ——

So, $2{,}592 \div 8 = 324$

$$
\begin{array}{r}
324 \\
8\overline{)2,592} \\
-24 \\
\hline
19 \\
-16 \\
\hline
32 \\
-32 \\
\hline
0
\end{array}
$$

## Check your understanding

**Solve using any strategy. Show your work.**

a. $18 \times 52 =$ ——

b. $2{,}451 - 722 =$ ——

c. $561 \div 4 =$ ——

d. $8{,}902 + 1{,}725 =$ ——

**Notes for parents :**

- Ask your child to use estimation to check his/her answers.

Lessons
**2 to 4**

- **Which Comes First ?**
- **Order of Operations**
- **The Order of Operations and Story Problems**

## Learn 1 Which comes first ?- Order of operations

**Find :** $6 - 2 \div 2$.

- Try solving the problem by subtracting first and then dividing. What do you get ?
- Try solving the problem by dividing first and then subtracting. What do you get ?

**One Way**

Think : $6 - 2 = 4$

$6 - 2 \div 2 = 4 \div 2$

$= 2$

**Another Way**

Think : $2 \div 2 = 1$

$6 - 2 \div 2 = 6 - 1$

$= 5$





There seem to be two correct answers.

When solving problems with more than one operation, you need to know what operation to do first. A special set of rules, called the order of operations, can be used to solve expressions with more than one operation.



**Order of Operations**

**First,** perform any operations in parentheses.
**Next,** multiply and divide from left to right.
**Then,** add and subtract from left to right.

**So, the correct answer to $6 - 2 \div 2$ is 5**

**Notes for parents :**

- Ask your child which operation comes first when solving the problems : $12 \div (4 - 1)$ and $6 + 4 \times 5$.

## Example 1

**Follow the order of operations to find the value of each expression :**

a. $[8-2]\times 6=$ ——— | b. $5+10\div 5=$ ——— | c. $3\times[4+6]=$ ———

d. $6-4\div 2=$ ——— | e. $[5+3]\div 2=$ ——— | f. $14\div 7\times 2=$ ———

### Solution

a. $[8-2]\times 6$
$=6\times 6$
$=36$
Do what is in the parentheses first, next multiply.

b. $5+10\div 5$
$=5+2$
$=7$
There are no parentheses, so divide first. Then add.

c. $3\times[4+6]$
$=3\times 10$
$=30$
Do what is in the parentheses first, next multiply.

d. $6-4\div 2$
$=6-2$
$=4$
There are no parentheses, so divide first. Then subtract.

e. $[5+3]\div 2$
$=8\div 2$
$=4$
Do what is in the parentheses first, next divide.

f. $14\div 7\times 2$
$=2\times 2$
$=4$
There are no parentheses, so divide and multiply from left to right.

## Example 2

**Follow the order of operations to find the result :**

a. $15+24\div 8-2=$ ——— | b. $15+24\div[8-2]=$ ———

### Solution

a. $15+24\div 8-2$
$=15+\ 3\ -2$
$=\ 18\ -2$
$=16$
There are no parentheses, so divide from left to right, Then add and subtract from left to right.

b. $15+24\div[8-2]$
$=15+24\div\ 6$
$=15+\ 4$
$=19$
Do what is in the parentheses first, next divide. Then add.

## Check your understanding

**Use the order of operations to find the value of each expression.**

a. $1+6\times 7$ | b. $[16+4]\div 2$ | c. $2\times 5-8\div 4$

**Notes for parents :**

- Ask your child why the values of $15+24\div 8-2$ and $15+24\div(8-2)$ are different.

## Learn 2 The order of operations and story problems

- Read to Understand
- Plan
- Solve
- Look back and check

### Example 3

Maged walked 20 kilometers every week for 3 weeks.
The next week he walked 15 kilometers.
**How many kilometers did he walk over those 4 weeks.**



**Solution**

What he walked = $20 \times 3 + 15$

$= 60 + 15 = 75$ kilometers.

### Example 4

Mohammed ran 8 kilometers on Saturday and twice that amount on Sunday. He ran 6 kilometers less on Monday than he did on Sunday.
**How many kilometers did he run on Monday ?**



**Solution**

What he ran = $8 \times 2 - 6$

$= 16 - 6 = 10$ kilometers.

### Example 5

There were 86 people on the pitch. 9 of them were coaches, and the rest wanted to play football.
If they wanted to form teams of 11,
**how many teams could they make ?**



**Solution**

Number of teams = $[86 - 9] \div 11$

$= 77 \div 11 = 7$ teams.

**Note that**
You should put parentheses to subtract first.

## Check your understanding

**Noha bought three books for 20 L.E. each. If she had 100 L.E., how much money is left with Noha ?**

• Ask your child to read each problem carefully and plane to solve each one, then ask him/her to look back to check his/her answer.

# Puzzles !

**Solve the following puzzles. The pictures in each puzzle represent numbers.**

a. □ + □ + □ = 15

□ + □ + ○ = 20

△ + ○ + ○ = 40

△ + ○ × □ = ___

b. ☆ + ☆ + ☆ = 12

☆ + ◎ + ☆ = 14

◎ + ♡ + ♡ = 10

♡♡ × ☆ + ◎◎ = ___

## Solution

The same pictures must represent the same number.

a. 5 + 5 + 5 = 15

5 + 5 + 10 = 20

20 + 10 + 10 = 40

20 + 10 × 5 = 70

Rectangle = 5

Circle = 10

Triangle = 20

20 + 10 × 5 = 20 + 50 = 70

b. 4 + 4 + 4 = 12

4 + 6 + 4 = 14

6 + 2 + 2 = 10

2 2 × 4 + 6 6 = 28

Star = 4

Sun = 6

Heart = 2

4 × 4 + 12 = 16 + 12 = 28

**Note**

The two pictures grouped together means to double the value of that picture.

**Notes for parents :**

- Help your child solve each puzzle. He/She should find the value of each picture, then solve the puzzle following the order of operations.

# Exercise 39

on lessons 2 to 4

- Which Comes First ?
- Order of Operations
- The Order of Operations and Story Problems

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

**1.** Write correct if the operations are listed in the correct order. If not, write the correct order of operations.

| | | | |
|---|---|---|---|
| a. $[9 + 3] \times 4$ | Multiply, add | b. $2 \times [3 + 4]$ | Add, multiply |
| c. $20 \div [10 - 6]$ | Subtract, divide | d. $27 - [14 \div 2]$ | Subtract, divide |
| e. $32 - 8 \div 2$ | Divide, subtract | f. $[23 - 11] \div 4 + 2$ | Divide, subtract, add |

**2.** Follow the standard order of operations to solve.

a. $8 \times 2 + 13 =$

b. $5 \times 6 - 12 =$

c. $200 - 80 \times 2 =$

d. $5 + 8 \div 2 =$

e. $20 \div 5 + 5 =$

f. $80 \div 8 - 7 =$

g. $5 + 5 \times 5 =$

h. $[30 - 6] \div 3 =$

i. $81 + [54 \div 6] =$

j. $[28 - 16] \times 4 =$

**3.** Solve the problems. Show your work.

a. $18 \times 2 + 8 - 3 =$

b. $73 - 60 + 15 \div 3 =$

c. $4 + 4 + 5 \times 10 =$

d. $3 \times 3 + 5 + 5 =$

e. $10 \times 3 + 15 \div 5 =$

f. $89 + 2 - 4 \times 3 =$

g. $30 + 2 \times [6 - 4] =$ _____

h. $36 - [4 + 8] \div 4 =$ _____

i. $6 + 32 \div [4 + 4] =$ _____

**4.** Put (✓) to the correct statement or (X) to the incorrect statement.

a. $3 + 18 \div 9 = 5$ [ ]

b. $13 + 36 \div 4 = 19$ [ ]

c. $3 \times [6 - 3] + 2 = 17$ [ ]

d. $7 + 14 \div 7 - 1 = 8$ [ ]

e. $3 \times 6 - [2 + 4] \div 2 = 15$ [ ]

f. $3 + 80 \div 10 - 11 = 1$ [ ]

**5.** 🕮 **Find the Answer** Solve each problem. Locate the correct answer and write the equation under it. If the answer is not listed, rewrite the problem under "Other".

| | | |
|---|---|---|
| $2 + 4 \times 6$ | $24 - 8 \div 4 + 6$ | $15 \div 5 + 4 + 1$ |
| $48 \div 4 + 9$ | $36 \div 9 + 4$ | $15 - 7 + 2 + 6$ |
| $7 + 70 \div 10 - 2$ | $99 - 10 \times 9 + 7$ | $8 \times 2 + 24 - 12$ |
| $49 - 7 \times 6 + 4$ | $12 - 72 \div 12 + 2$ | $24 \times 36 \div 6 + 2$ |
| $8 \times 3 + 6 + 2$ | $80 \div 10 + 6 - 3$ | $40 - 7 \times 5 + 2$ |

| | | |
|---|---|---|
| **8** | **11** | **16** |
| **28** | **32** | **other** |

**6. Reasoning** Use the numbers listed to make a true number sentence.

a. 2, 6, and 5

□ + □ × □ = 16

b. 4, 12, and 18

□ − □ ÷ □ = 15

c. 8, 9, and 7

□ × □ − □ = 47

**7. Which Does Not Belong?** Solve the problems. Then, think about which problem does not belong in the set. Highlight or circle the problem you think does not belong and explain your thinking.

a. $6 \times 4 - 4 =$ _____

b. $100 - 80 \times 1 =$ _____

c. $60 + 20 - 50 =$ _____

d. $2{,}356 - 2{,}336 =$ _____

**8. Talk about math**

Explain why the values of $8 + 6 \div 2$ and $(8 + 6) \div 2$ are different.

What is the value of each expression?

**9. Who is correct?**

Saleem and Sarah both solved the problem $74 - 61 + 8 \times 5$.

Saleem says the answer is 105 and Sarah says the answer is 53. Who is correct?

How do you know? Help the person who is not correct realize his/her mistake.

**10. Number talk**

Solve the problems. Then, rewrite each problem more efficiently.

a. $67 + 67 + 67 + 67 + 67 - 15 =$ _____

b. $568 + 78 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 =$ _____

## Story problems

**11. Solve the following problems. Remember the order of operations.**



a. 📖 Abdullah loves collecting stamps. He received 246 stamps for his birthday. He kept 25 of the stamps and now he wants to give the rest to 6 of his friends. How many stamps will each friend get if they share them equally ?

b. 📖 Maha walked 14 kilometers every day for 2 weeks. The next week she walked 56 kilometers. How many kilometers did she walk over those 3 weeks ?

c. 📖 Ashraf has to take the bus to work. It takes 27 minutes to get to the bus stop near his job. Then, he has to walk for 12 minutes from the bus stop to his place of work. How many minutes does Ashraf spend going to work during a 5-day week ?



d. 📖 A group of tourists are taking a tour of Alexandria. There are 172 tourists and 8 tour guides in the group. They want to travel to the pyramids in microbuses. Each microbus fits 9 people. How many microbuses will they need in order to get everyone to the pyramids ?

e. 📖 Sita wants to bake berry muffins. Each muffin will have 6 berries in it. She buys 198 berries from the store. On the way home, she eats 17 of the berries. How many muffins can she make with the berries she has left ?

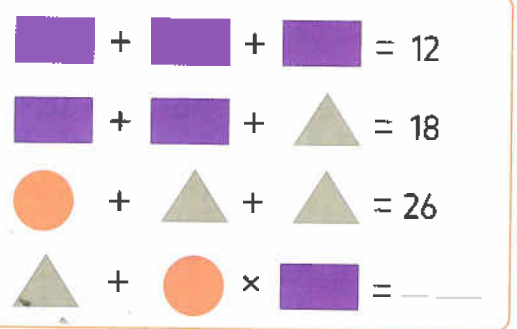
f. 📖 There are 194 people at a concert. After the concert, 43 people leave in cars. The remaining people want to take microbuses home. If 9 people can fit on each microbus, how many microbuses are needed to get everyone home from the concert ?

g. 📖 Bilal buys 6 packages of balloons. Each package contains 18 balloons. He wants to give the balloons to his friends at his birthday party. If he has 8 friends at the party, how many balloons can each friend take home ?

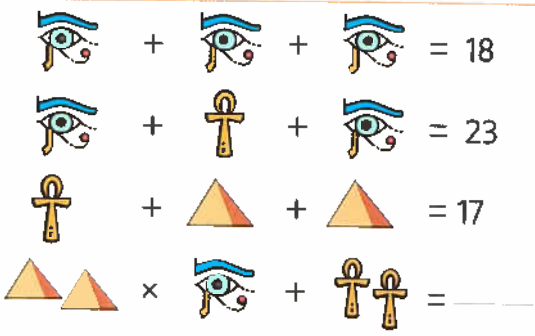
## Puzzles

**12.** Solve each puzzle. When you figure out the number that each picture represents, write the value above the picture. Remember the order of operations.

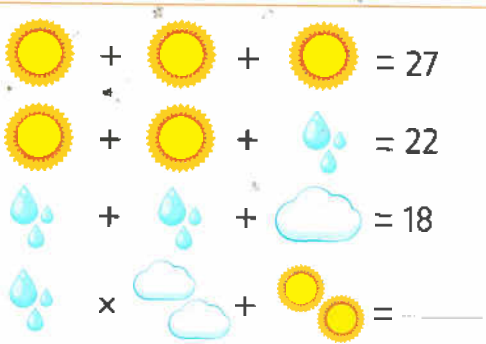
a.




b.




c.



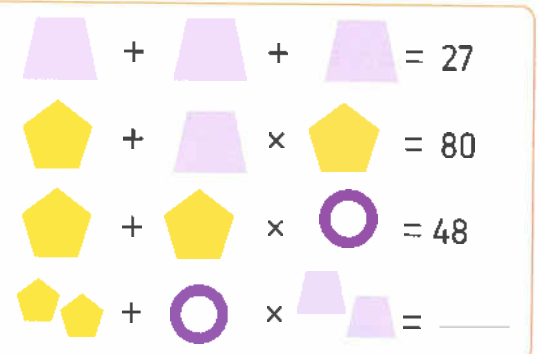

## Challenge

**13.** Solve the puzzles.

a.




b.




**14.** Writing my Own problem Write a story problem that can be represented by (50 – 36) ÷ 4.

# Multiple Choice Questions

Choose the correct answer.

**1.** $3 \times 16 - 4 =$ _____

A. 4 B. 12
C. 36 D. 44

**2.** $4 + 2 \times (10 - 4) =$ _____

A. 4 B. 8
C. 12 D. 16

**3.** $(16 + 8) \div 4 + 2 =$ _____

A. 4 B. 6
C. 8 D. 20

**4.** $4 \div 1 + 8 \times 2 =$ _____

A. 20 B. 24
C. 1 D. zero

**5.** $5 + 3 \times 6 - 2 =$ _____

A. 46 B. 32
C. 21 D. 17

**6.** Which is the first step in evaluating $18 - 15 + 3 \times 8 - 2$?

A. $18 - 15$ B. $15 + 3$
C. $3 \times 8$ D. $8 - 2$

**7.** Which expression can be used to solve the problem below?

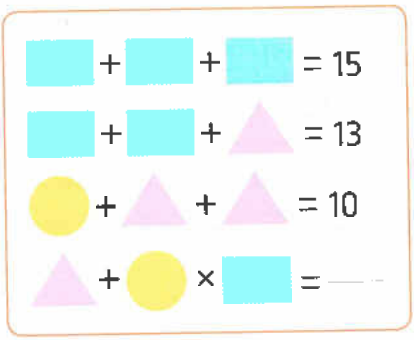
On a recent math test, Maher scored 3 points for each of the 18 multiple choice questions he answered correctly and 5 points for each of the 6 short response questions he answered correctly. What was his total score on the test?

A. $3 + 5 \times 18 + 6$ B. $3 + 18 \times 5 + 6$
C. $3 \times 5 + 18 \times 6$ D. $3 \times 18 + 5 \times 6$

**8.** $5 + 5 + 5 + 5 + 5 - 12 =$ _____

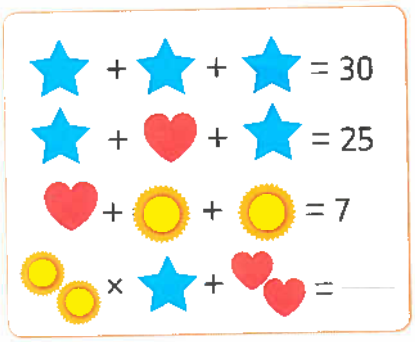
A. $5 \times 6 - 12$ B. $20 - 12$ C. $5 \times 5 - 12$ D. $5 \times 5 + 12$

**9.**



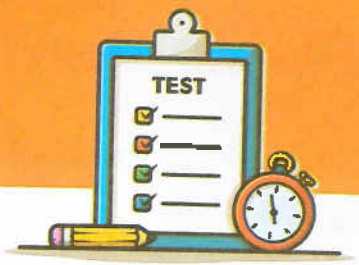

A. 35 B. 12
C. 345 D. 23

**10.**




A. 15 B. 40
C. 200 D. 30

# Unit Eight Assessment




**1.** Put (✓) to the correct statement or (✗) to the incorrect statement.

a. $20 \div 5 + 5 = 2$ [ ]

b. $18 \times 2 + 8 - 3 = 18 \times 7$ [ ]

c. $67 + 67 + 67 + 67 + 67 - 15 = 67 \times 5 - 15$ [ ]

d. $2 + 4 \times 6 = 36$ [ ]

**2.** Choose the correct answer.

a. $8 + 12 \div 4 =$ ____

A. $16 \div 4$ B. $8 + 3$ C. $8 \div 4$ D. $8 + 4$

b. $200 - 80 \times 2 =$ ____

A. 240 B. 360 C. 282 D. 40

c. $3 + 3 \times 3 =$ ____

A. 6 B. 9 C. 12 D. 333

d. Noha walked 10 kilometers every day for 2 weeks. The next week she walked 60 kilometers. How many kilometers did she walk over those 3 weeks?

A. 1340 km B. 200 km C. 740 km D. 80 km

**3.** Complete the following.

a. $14 \div 7 + 20 =$ ____

b. $5 + 8 \div 2 =$ ____

c. $[3 + 3] \times 4 - 1 =$ ____

d. $80 \div 10 + 6 - 3 =$ ____

**4.** Match the cards that have the same number.

| | | | |
|---|---|---|---|
| a. | $9{,}230 - 455$ | 1. | 8 |
| b. | $15 \div 5 + 4 + 1$ | 2. | 8,775 |
| c. | $62 \times 18$ | 3. | 9 |
| d. | $5 + 8 \div 2$ | 4. | 1,116 |

**5.** Solve using the order of operations. Show your work.

a. $67 + 3 - 4 \times 5$

b. $7 + [12 - 6] \div 2$

**6.** Compare. Write (>, < or =).

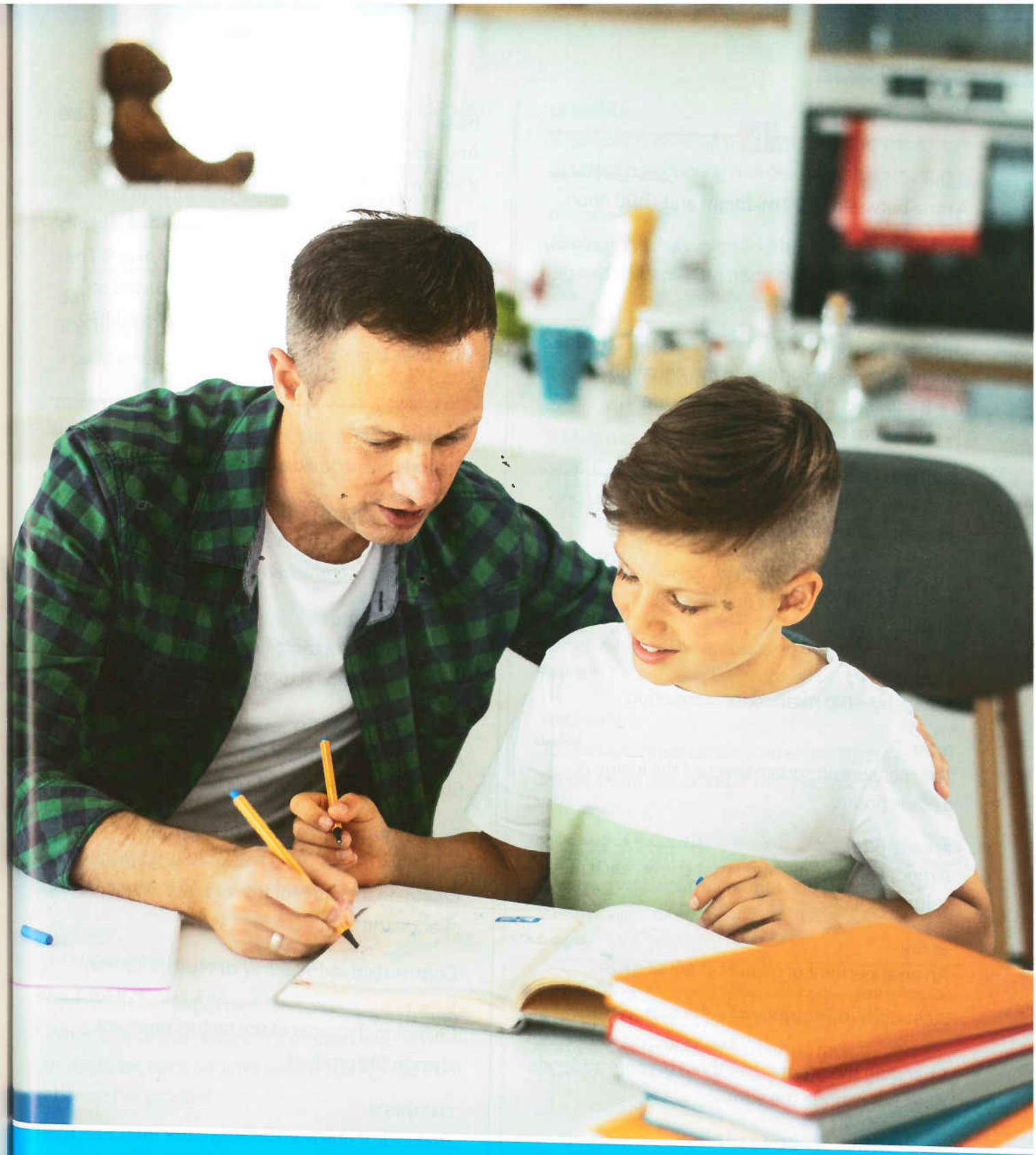
a. $48 - [16 - 6]$ ◯ $[48 - 16] - 6$

b. $8 + 12 \div 4$ ◯ $[8 + 12] \div 4$

**7.** Edward has to take the bus to work. It takes 25 minutes to get to the bus stop near his job. Then, he has to walk for 15 minutes from the bus stop to his place of work.

How many minutes does Edward spend going to work during a 5-day week?





# Glossary

## A

**a.m.** صباحًا (قبل الظهر)
A time between 12:00 midnight and 12:00 noon.

**add** يجمع
To combine or join together; put together two or more quantities.

**addend** عدد مُضاف
Any number being added. In the equation $6 + 8 = 14$, six and eight are both addends, 14 is the sum.

**additive comparison** مقارنة باستخدام عملية الجمع
Problems that ask how much more (or less) one amount is than another.

**Additive Identity Property** خاصية المحايد الجمعي
When you add zero to a number, the sum is that same number.

**algorithm** خوارزمية
A step-by-step method for computing.

**area** مساحة
The measure, in square units, of the inside of a plane figure.

**area model** نموذج مساحة المستطيل
A model of multiplication that shows each place value product.

**array** مصفوفة
An arrangement of objects in equal rows.

**Associative Property of Addition** خاصية الدمج في عملية الجمع
Changing the grouping of three or more addends does not change the sum.

**Associative Property of Multiplication** خاصية الدمج في عملية الضرب
Changing the grouping of three or more factors does not change the product.

## B

**bar model** نموذج شريطي
A model that uses bars to represent known and unknown quantities and the relationship between these quantities.

**base** قاعدة
Any side of a plane figure. Usually thought of as a side where the figure "sits".

**Base Ten numerals** أرقام نظام العد العشري
Any of the symbols 0, 1, 2, 3, 4, 5, 6, 7, 8 or 9. The symbols can represent any amount based on a place value system of grouping by tens (also known as digits).

## C

**capacity** سعة
The amount of liquid a container can hold.

**centimeter (cm)** سنتيمتر (سم)
A metric unit of length equal to $\left(\frac{1}{100}\right)$ of a meter.

**common factor** عامل مشترك
Any common factor of two or more numbers. Six is a common factor of both 12 and 24.

**common multiple** مضاعف مشترك
Any common multiple of two or more numbers. Six is a common multiple of both 2 and 3.

**Commutative Property of Addition** خاصية الإبدال في عملية الجمع
Changing the order of the addends does not change the sum.

**Commutative Property of Multiplication** خاصية الإبدال في عملية الضرب
Changing the order of the factors does not change the product.

**compare** يقارن
To decide if one number is greater than, less than, or equal to.

**compose** يكوّن
To put together smaller numbers to make larger numbers.

**Composite number** عدد غير أولي
A number greater than 0 that has more than two different factors

**Customary system** نظام القياس المتعارف عليه
A system of measurement used in the United States. The system includes units for measuring length, capacity, and weight. Nearly everyone else uses the metric system.

## D

**day** يوم
The length of time it takes the Earth to make a complete rotation. 24 hours = 1 day.

**decimeter (dm)** ديسيمتر (ديسم)
A metric unit of length. 1 decimeter = 0.1 meter; 10 decimeters = 1 meter. A hand span is about 1 decimeter.

**decompose** يحلل
To separate number into two or more parts.

**determine** يعيّن
To decide or settle upon, figure out.

**difference** فرق
The amount that remains after one quantity is subtracted from another. The answer in a subtraction problem.

**digit** رقم
Any of the symbols 0, 1, 2, 3, 4, 5, 6, 7, 8 or 9. [Also known as Base Ten numerals.]

**display** يعرض
To show, exhibit or demonstrate.

**Distributive Property** خاصية التوزيع
When one of the factors of a product is a sum, multiplying each addend before adding does not change the product.

**divide** يقسم
To separate into equal groups and find the number in each group or the number of groups. 56 split into 8 equal groups equals seven in each group, 56 ÷ 8 = 7

**dividend** مقسوم
A number that is divided by another number. 56 is the dividend in the above example.

**divisible** قابل للقسمة
A number is divisible by another number if the quotient is a counting number without a remainder.

**divisor** مقسوم عليه
The number by which another number is divided. 8 is the divisor in 56 ÷ 8 = 7

## E

**elapsed time** وقت منقض
The amount of time that has passed (also known as time interval). Six hours elapse between 8:00 am and 2:00 pm.

**equal** يساوى
Having the same value. 2 feet = 24 inches.

**equation** معادلة
A mathematical sentence with an equal sign. The amount on one side of the equal sign has the same value as the amount on the other side. 4 + 3 = 7

**estimate** يقدّر
To find a number close to an exact amount, an estimate tells about how much or about how many.

**expanded form** صيغة ممتدة
A way to write numbers that shows the place value of each digit. 263 = 200 + 60 + 3

## F

**fact family** مجموعة حقائق رياضية ذات صلة
A group of related facts that use the same numbers (also known as related facts). Fact family for 3, 5, 15 : 3 × 5 = 15 ; 15 ÷ 5 = 3 ; 5 × 3 = 15 ; 15 ÷ 3 = 5

**factors** عوامل
The whole numbers that are multiplied to get a product. 6 × 7 = 42 (6 and 7 are factors.)

**factor pairs** أزواج عوامل العدد
A set of two whole numbers that when multiplied will result in a given product. 2 × 3 = 6, 1 × 6 = 6. The factor pairs for 6 are : 2 and 3, 1 and 6

**formula** قانون / قاعدة

A rule that is written as an equation.

$A = l \times w$

## G

**gram (g)** جرام (جم)

The standard unit of mass in the metric system.

1,000 grams = 1 kilogram.

The mass of a paperclip is about 1 gram.

**greater than (>)** أكبر من

Used to compare two numbers when the first number is larger than the second number.

## H

**horizontal** أفقي

Parallel to the horizon. Horizontal lines go from left to right or right to left.

**hour (hr)** ساعة

A unit of time. 1 hour = 60 minutes;

24 hours = 1 day.

**Hundreds** مئات

The value of a digit that is the third position from the right when describing whole number place value.

## I

**identify** يحدد

Recognize or distinguish, figure out what it is, name it.

**Identity Property of Multiplication** خاصية المحايد الضربي

The property that states that the product of any number and 1 is that number : $n \times 1 = n$

**interpret** يفسر

To explain or tell the meaning of something.

**inverse operations** عمليات عكسية

Operations that undo each other. Multiplication and division are inverse operations.

$8 \times 5 = 40$ and $40 \div 5 = 8$

## J

**justify** يبرر

To show or prove to be right or reasonable.

## K

**kilogram (kg)** كيلوجرام (كجم)

A metric unit of mass equal to 1,000 grams.

1 kilogram = about 2,2 pounds.

**kilometer (km)** كيلومتر (كم)

A metric unit of length equal to 1,000 meters.

## L

**length** طول

How long something is. The distance from one point to another. Length is measured in units such as centimeters, meters and kilometers. One dimension of a 2-dimensional or 3-dimensional figure.

**less than (<)** أقل من

Used to compare two numbers when the first number is smaller than the second number.

**line plot** مخطط التمثيل بالنقاط

A diagram showing frequency of data on a number line.

**liter (L)** لتر

The basic unit of capacity in the metric system.

1 liter = 1,000 milliliters.

## M

**mass** كتلة

The amount of matter in an object, usually measured by comparing with an object of known mass. While gravity influences weight, it does not affect mass.

**mental math or mental calculation** حساب عقلي

Calculations that are done in a student's head without pencil and paper, calculators or other aids.

**meter (m)** متر (م)
A standard unit of length in the metric system.

**metric system** النظام المترى
A system of measurement based on tens. The basic unit of capacity is the liter. The basic unit of length is the meter. The basic unit of mass is the gram.

**milliliter (mL)** ملليلتر (مل)
A metric unit of capacity.
1,000 milliliters = 1 liter.
This holds about 10 drops or 1 milliliter.

**millimeter** ملليمتر (مم)
A metric unit of length.
1,000 millimeters = 1 meter.

**minute (min)** دقيقة
A unit used to measure a short amount of time.
There are 60 minutes in one hour.

**model or visual model** نموذج أو نموذج مرئى
A picture or representation of a solution, a number or a concept.

**month** شهر
A length of time equal to 28 , 30 or 31 days.
12 months = 1 year.

**multidigit** متعدد الأرقام
Having more than one digit (number). Seven (7) is a single digit, where as seventy-two (72) and seven hundred forty-two (742) are multidigit numbers.

**multiple** مضاعف
A product of a given whole number and any other whole number. 12 is a multiple of 3 and 4 because $3 \times 4 = 12$

**multiplicative comparison** مقارنة باستخدام عملية الضرب
A way to compare quantities using multiplication, as in "This tree is 3 times shorter than that tree".

**multiply** يضرب
The operation of repeated addition of the same number. $3 \times 5 = 5 + 5 + 5$

## N

**number** عدد
The quantity we associate with a numeral. Often used interchangeably with digit and numeral.

**number line** خط الأعداد
A diagram that represents numbers as points on a line.

**numeral** صيغة عددية
Represents the idea of a number. The numeral 153 is composed of digits 1, 5 and 3. Often used interchangeably with digit and number.

## O

**Ones** آحاد
The value of a digit that is farthest to the right when describing whole number place value.

**order** ترتيب
A sequence or arrangement of things.

**Order of Operations** ترتيب العمليات
A set of rules that tells the order in which to compute.
1. Do operations in parentheses.
2. Multiply and divide in order from left to right.
3. Add and subtract in order from left to right.

## P

**p.m.** مساءً (بعد الظهر)
The time between 12:00 noon and 12:00 midnight.

**parentheses** أقواس
Used in mathematics as grouping symbols for operations. When simplifying an expression, the operations within the parentheses are performed first.

**partial product** ناتج عملية الضرب بالتجزئة
A method of multiplying in which the value of each digit in a factor is multiplied separately, and then the partial products are added together.

**partial quotient** ناتج عملية القسمة بالتجزئة
A method of dividing in which multiples of the divisor are subtracted from the dividend, and then the partial quotients are added together.

**pattern** نمط
A repeating or growing sequence or design.
An ordered set of numbers or shapes arranged according to a rule.

**perimeter** محيط
The distance around the outside of a figure.

**period** فترة
In a large number, periods are groups of 3 digits separated by commas or by spaces.

**place value** قيمة مكانية
The value of the place of a digit in a number.

**prime number** عدد أولي
A whole number greater than 1 that has exactly two different factors, 1 and itself.

**product** ناتج الضرب
The answer to a multiplication problem.
In $6 \times 7 = 42$, 42 is the product/answer.

## Q

**quotient** خارج القسمة
The answer to a division problem.

## R

**reasonableness** معقولية
An answer that is based on good number sense.

**recognize** يدرك
identify (someone or something) from having encountered them before; know again, remember.

**rectangle** مستطيل
A quadrilateral with two pairs of congruent, parallel sides and four equal angles.

**regroup** إعادة تسمية
To rearrange numbers into groups of 10 when performing mathematical operations.

**related facts (fact family)** حقائق ذات صلة
Related addition and subtraction facts or related multiplication and division facts. Related facts for 3, 5, 8: $3 + 5 = 8$; $8 - 5 = 3$; $5 + 3 = 8$; $8 - 3 = 5$ (also known as fact family).

**remainder** باقي القسمة
The amount left over when one number is divided by another.

**repeated subtraction** طرح متكرر
Subtracting equal groups to find the total amount of groups (also called division).

**represent** يعرض
To show or model.

**round a whole number** تقريب عدد صحيح
To identify the nearest Ten, Hundred, Thousand, (and so on) and rename a number so it is easier to mentally add, subtract, multiply, or divide.

**rule** قاعدة
something that happens every time
(for example : 2, 5, 8, 11 ... the rule is + 3).

## S

**second (sec)** ثانية
A unit used to measure a very short amount of time. There are 60 seconds in one minute.

**sequence** تسلسل
A set of numbers arranged in a special order or pattern.

**sketch** رسم تقريبي سريع
A quick, rough drawing.

**specify** يعيّن
identify clearly and definitely.

**square** مربع
A parallelogram with four equal angles and four equal sides.

**square unit** وحدة مربعة
A unit, such as square centimeter, used to measure area.

**standard form** صيغة قياسية
A common or usual way of writing a number using digits. 12,376 is in standard form.

**subtract** يطرح
An operation that gives the difference between two numbers. Subtraction can be used to compare two numbers, or to find out how much is left after some is taken away.

**sum** مجموع
The answer to an addition problem.

## T

**Tens** عشرات
The value of a digit that is the second position from the right when describing whole number place value.

**Thousands** آلاف
The value of a digit that is the fourth position from the right when describing whole number place value.

**time interval** فترة زمنية
A duration of a segment of time (also known as elapsed time).

**ton** طن
A customary unit of weight. 1 ton (T) = 2,000 pounds. A metric ton, or tonne (t) is a unit of mass equal to 1,000 kilograms (about 2,200 pounds).

**two-dimensional** ثنائي الأبعاد
Having length and width.

## V

**variable** متغير
A letter or symbol that represents a number.
$5 \times b = 10$, b is a variable worth 2.

**vertical** رأسي
Perpendicular to the horizon. Vertical lines go up and down.

## W

**week** أسبوع
There are seven days in a week: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday.

**weight** وزن
The measure of how heavy something is.

**whole** كامل
All of an object, a group of objects, shape or quantity.

**whole numbers** أعداد صحيحة
The numbers 0, 1, 2, 3 and so on, without fractions or decimals.

**width** عرض
One dimension of a 2-dimensional or 3-dimensional figure.

**word form** صيغة لفظية
A way of using words to write a number. The word form of 12,345 is twelve thousand, three hundred forty-five.

## Y

**year** عام
The length of time it takes the Earth to revolve around the sun. 12 months = 1 year; 365 days = 1 year; 366 days = 1 leap year.

## Z

**Zero Property of Multiplication**
خاصية الضرب في صفر
The product of any number and zero is zero
$8 \times 0 = 0$

EL-MOASSER

# Mathematics

By a group of supervisors

FREE PART 1 Step by Step Revision

- Cumulative Assessments
- Directorates Exams



FIRST TERM

4th PRIMARY 2023

# Cumulative Assessments on UNIT 1

## Cumulative Assessment 1 Till lessons (2 & 3) unit 1

**1. Choose the correct answer.**

a. The digit _____ is in the Ten millions place in the number 346,870,251

A. 8 B. 0 C. 5 D. 4

b. The value of the digit 3 in the number 23,694,501 is _____

A. 3,000 B. 30,000 C. 300,000 D. 3,000,000

c. The value of the digit 4 in the number 42,780 is 10 times.
the value of the digit 4 in which number ?

A. 146,703 B. 426,135 C. 34,651 D. 10,400

d. 10,000 + 7,000 + 400 + 60 + 3 < _____

A. 16,643 B. 71,346 C. 17,364 D. 15,999

**2. Complete.**

a. The value of the digit 0 in the number 7,056,219 is _____

b. The number of hundreds in one million = _____

c. The place value of the digit 0 in the number 706,421,573 is _____

d. 58,000 Thousands = _____ Millions.

**3. Match.**

| | | | |
|---|---|---|---|
| a. | 4 milliards , 683 millions 17 thousands, 918 | 1. | 38,600 ten thousands |
| b. | The digit 5 is in the hundred millions place in the number | 2. | 90,050,000 |
| c. | 90,050 thousands | 3. | 4,683,017,918 |
| d. | 386 millions | 4. | 7,524,800,673 |

## Cumulative Assessment 2 Till lessons (5 & 6) unit 1

**1. Choose the correct answer.**

a. 5,000,000 + 40,000 + 8,000 + 700 + 20 + 3 = _____

A. 5,408,723 B. 5,048,723 C. 5,084,723 D. 5,048,273

b. 4,800,000 = _____ Thousands

A. 48 B. 480 C. 4,800 D. 480,000

c. The number _____ has 9 digits.

A. 36,423,100 B. 8,614,000 C. 125,000,694 D. 167,282

d. _____ is the compose of [ 6 × 100,000] + [5 × 10,000) + [3 × 100] + [4 × 10]

A. 650,340 B. 605,340 C. 650,304 D. 650,034

**2. Complete.**

a. 34 millions , 905 thousands , 421 in standard form is _____

b. The value of 7 in the number 720,358,014 is _____

c. The expanded form of 5,614,003 is _____ + _____ + _____ + _____ + _____

d. 450 thousands = _____

**3. Complete the following.**

Composed : _____

Decomposed : _____ + _____ + _____ + [2 × 100,000] + [4 × 1,000] + + [7 × 10] + [5 × 1]

| Millions | | | Thousands | | | Ones | | |
|---|---|---|---|---|---|---|---|---|
| H | T | O | H | T | O | H | T | O |
| 6 | 1 | 8 | — | 0 | — | 3 | — | — |

## Cumulative Assessment 3 Till lesson 8 unit 1

**1. Compare. Write (< , > or =).**

a. 43,600,287 ◯ 43 Millions , 700 thousands and 286

b. 1,534,973 ◯ 900,000 + 90,000 + 4,000 + 300 + 6

c. Seven millions, two hundred forty six thousands ◯ 70,000,000

d. [5 × 10,000,000] + [7 × 1,000,000] + [4 × 100,000] + [2 × 1,000] + [6 × 100] ◯ 1 milliard

**2. Choose the correct answer.**

a. 2,800 thousands >

A. 2,800 hundreds B. 28,000 hundreds

C. 28 millions D. 2 milliards

b. The place value of 6 in 6,482,759,310 is _____

A. Millions B. Ten Millions C. Hundred Thousands D. Milliards

c. The number 42,365,978 has ..... digits.

A. 10 B. 9 C. 8 D. 7

d. The missing digit such that 8,000 + 100 + 80 + 5 > 8, ▢85 is

A. 0 B. 1 C. 2 D. 3

**3.** Write a number that is less in the ten thousands place than 53,782. _____

**4.** Create a number that is smaller in the Ten Million place than 745,864,251 _____

**5.** Create a number that is greater in the thousands place than six Milliard , Six million , eight thousand , eight hundred.

## Cumulative Assessment 4 Till lesson 9 unit 1

**1. Choose the correct answer:**

a. Which choice shows the numbers in an ascending order?

**A.**
1. 700 + 50 + 7
2. Seven hundred seventy-five
3. 765
4. Eight hundred five

**B.**
1. 780
2. Eight hundred forty
3. 800 + 50 + 1
4. One thousand

**C.**
1. 572
2. 500 + 80 + 1
3. Five hundred seventy-two
4. 600 + 70 + 4

**D.**
1. Six hundred five
2. 600 + 50
3. 674
4. Six hundred nine

b. Which digit makes the number sentence true? 3 million, 521 thousand, 432 < 3, 21,432

A. 3 B. 4 C. 5 D. 6

c. Which number sentence is true?

A. 74,562 < 9,000 + 800 + 50 + 6
B. 300,000 + 40 < 700,000 + 20
C. million < 792,561
D. Four hundred eighty two > 7 thousand,914

d. In the number 11,111, how many times is the digit in the Thousands place as the digit in the Tens place?

A. 10 B. 100 C. 1,000 D. 10,000

**2. Write each of the following numbers in standard form and arrange in an ascending order.**

- [5 × 1,000,000,000] + [2 × 10,000,000] + [5 × 1,000] + [1 × 10] + [8 × 1]
- Five Milliard, three million, fifty three
- 5,000,000,000 + 4,000,000 + 6,000 + 9
- 525 million, 508

| Standard form | Ascendingly |
|---|---|
| | |
| | |
| | |
| | |

**3. Complete.**

a. 5,007 thousands = _____

b. Six milliard, four hundred two million, twenty-eight in standard form is _____

c. The value of the digit 4 in the number 3,456,261,852 is _____

d. _____ is 100 times as many as fifty thousand.

## Cumulative Assessment 5 Till lesson 11 unit 1

**1. Draw the number line, record the midpoint, then round each of the following numbers.**

a. 574,698 [to the nearest Ten Thousand]

b. 12,983 [to the nearest Hundred]

**2. Use place value strategy to round each of the following.**

a. 4,865 ≈ _____ [ to the nearest 100]

b. 7,985,462 ≈ _____ [to the nearest Hundred Thousand]

c. 99,999,862 ≈ _____ [to the nearest Million]

d. 54,321,782 ≈ _____ [to the nearest Ten Thousand]

**3. Choose the correct answer.**

a. 78,562 9,000 + 800 + 50 + 4

A. > B. < C. =

b. 100,000 is _____ times 1,000

A. 10 B. 100 C. 1,000 D. 10,000

c. Which number round to 700,000 when rounded to the nearest Hundred Thousand ?

A. 706,999 B. 752,384 C. 799,999 D. 789,653

d. 870 Hundreds = _____ Tens.

A. 87 B. 8,700 C. 87,000 D. 870,000

**4.** Write 5 different numbers if rounded to the nearest hundred the result is 784,500

**5. Complete.**

Composed : 7,453,361,214

Decomposed : _____

# Cumulative Assessments on UNIT 2

## Cumulative Assessment 6 Till lesson 1 unit 2

**1.** Choose the correct answer.

a. Fady worte 994 + 0 = 994 using the ____ ____ property.

A. additive identity B. commutative C. associative

b. 70,000,000 + 8,000 + 50 + 1 ____ ____ Seven million, twenty.

A. > B. < C. =

c. Which number round to 3,500,000 when rounded to the nearest Hundred Thousand ?

A. 3,562,531 B. 3,426,217 C. 3,524,261 D. 3,584,212

d. The value of the digit 6 in the number 63,785 is 100 times the value of the digit 6 in which number ?

A. 46,521 B. 94,682 C. 241,261 D. 432,216

**2.** Put (✓) to the correct statement and (✗) to the incorrect statement.

a. 35 – 14 = 14 – 35 ( )

b. The place value of the digit 4 in the number 5,862,431,811 is Hundred Thousand ( )

c. The compose of the number [7 × 10,000] + [2 × 1,000] + [4 × 100] is 72,400 ( )

d. The smallest 6- different digit number is 10,234 ( )

**3.** Solve each problem and name the property used.

a. 17 + 8 + 3 _____

b. 35 + 14 + 15 + 36 _____

**4.** Round 773,329

a. to the nearest ten _____

b. to the nearest ten thousand _____

## Cumulative Assessment 7 Till lesson 3 unit 2

**1. Choose the correct answer.**

a. 35,216 + 1,999 = _____

A. 37,215 B. 45,206 C. 37,216 D. 36,216

b. Which of these statements used only commutative property of addition to find 17 + 48 + 13 ?

A. [17 + 48] + 13 B. 17 + 13 + 48 C. 17 + [13 + 48] D. [17 + 13] + 48

c. 58,000 = _____ tens.

A. 58,000 B. 5,800 C. 580 D. 58

d. 762 + 3,156 = _____ + 762

A. 762 B. 3,918 C. 3,156 D. 1,524

**2. Estimate using rounding to the nearest 100. Find the exact answer.**

a. 35,462 + 23,221 = _____

b. 2,942 + 350 = _____

c. 94,641 + 2,961 = _____

**3.** Use the properties of addition to find the sum of 142 + 55 + 18 + 45

**4.** In a week 3,573 tourists visited Giza pyramids and in the next week 4,230 tourists visited them.
Find the number of tourists in the two weeks ? [Round to the nearest Hundred]

**5. Arrange in a descending order, using the forms which the numbers are written.**

- [3 × 1,000,000,000] + [5 × 10,000,000] + [4 × 10]
- Three milliard, five hundred million, fourteen
- 3,000,786,562
- 3,000,000,000 + 20,000,000 + 400

The order is : _____

## Cumulative Assessment 8 Till lessons (4 & 5) unit 2

**1.** **a.** Solve 852 – 465 using counting down.

Using number line with decomposing strategy.



**b.** Solve 5,425 – 1,373 using counting on.

Using number line with decomposing strategy.



**c.** Solve the following problems , then round to the nearest Ten to check the reasonableness of your answer.

1. 7,356 − 2,547 = ____

2. 3,785 + 2,816 = ____

**2.** **Write (< , > or =).**

| | | |
|---|---|---|
| a. 7,856,432 | ◯ | 7,000,000 + 80,000 + 6,000 + 900 + 80 + 9 |
| b. 842 + 237 | ◯ | 3,225 – 2,784 |
| c. 7,423 + 8,612 | ◯ | 22,520 – 7,250 |
| d. 370 Hundreds | ◯ | 3,700 Tens |

**3.** A factory produced 2,879 toys in one week. The next week , the factory produced 3,267 toys. Find the difference between the production in the two weeks.

**4.** **Subtract.**

a. 432 – 395 = ____

b. 276 – 194 = ____

## Cumulative Assessment 9 Till lesson 6 unit 2

**1.** Solving equations with variable. Create a bar model.

**a.** s – 74,252 = 23,402

Bar model :

Solution: _____

**b.** b + 4,261 = 21,253

Bar model :

Solution : _____

**c.** 47,261 – m = 31,422

Bar model :

Solution : _____

**d.** 45,261 + k = 52,428

Bar model :

Solution : _____

**2.** Choose the correct answer.

**a.** The value of the digit 3 in the number 7,516,234,981 is _____

A. 3,000,000,000 B. 300,000 C. 30,000 D. 3000

**b.** (241 + 1,614) + 7,426 = ( _____ + 7,426)

A. 241 B. 1,855 C. 7,426 D. 1,000

**c.** (8 × 1,000,000) + (7 × 10,000) + (5 × 100) + (6 × 10) in standard form is _____

A. 87,560 B. 8,070,560 C. 8,700,560 D. 870,560

**d.** If $x - 8 = 13$, then $x =$ _____

A. 5 B. 4 C. 21 D. 22

**3.** Colony A has 32, 425 male ants , if the colony has 74,319 ants , how many ants are female ?

Bar model :

Solution : _____

**4.** Use the properties of addition to find the sum.

**a.** 75 + 87 + 25 _____

**b.** 712 + 59 + 28 + 111 _____

## Cumulative Assessment 10 Till lesson 7 unit 2

**1. Complete the following.**

a. If b – 34,252 = 12,604 , then b = _____

b. The value of the digit 4 in the number 4,851,061,052 is _____

c. 2,785,629,142 in expanded form is _____

d. 15 + 5 + 7 = (15 + 5) + _____ [_____ property] = _____ + _____ = _____

e. 47,562 – 2,853 = _____

f. In the bar model

| 100 | |
|---|---|
| 35 | $x$ |

, $x$ = _____

**2.** Port Said has a population of 782,180 , if South Sinai has a population of 111,835 and North Sinai has a population of 450,528 , how many more people do Port Said than South Sinai and North Sinai have combined ?

**3.** A library sold 5,325 books in the first month, 9,712 books in the second month. If the library had 20,000 books. How many books are left ?

**4. Estimate using rounding to the nearest 100. Find the exact answer.**

a.
$$\begin{array}{r} 5,646 \\ -\ 2,389 \\ \hline \end{array}$$

b.
$$\begin{array}{r} 72,861 \\ -\ 5,466 \\ \hline \end{array}$$

c.
$$\begin{array}{r} 2,462 \\ +\ 1,391 \\ +\ 946 \\ \hline \end{array}$$

**5. Write (< , > or =).**

a. 9,000,000 + 70,000 + 50 ◯ nine million, seven thousand, fifty-nine.

b. 40,000 – 1,523 ◯ 37,456 + 2,652

c. 2,394 + 5,291 ◯ 12,006 – 4,321

d. The value of the digit 8 in the number 381,452,671 ◯ The value of the digit 8 in the number 1,815,462

# Cumulative Assessments on UNIT 3

## Cumulative Assessment 11 Till lesson 1 unit 3

**1.** Convert the lengths into the units on the bar models.

a.

| 783 cm | |
|---|---|
| ___ m | ___ cm |

b.

| 7,486 m | |
|---|---|
| ___ km | ___ m |

c.

| ___ m | |
|---|---|
| 25 km | 423 m |

**2.** Complete.

a. 7 m = _____ mm.

b. _____ cm = 78,000 m

c. 7 km , 50 m = _____ m

d. 8,762 m = _____ km , _____ m

e. 13,000 mm = _____ m

f. 11 dm = _____ cm

**3.** Choose the correct answer.

a. 13 thousands = _____ hundreds

A. 13,000 B. 1,300 C. 130 D. 13

b. 70,000,000 + 5,000 + 700 + 40 + 3 in standard form is _____

A. 7,050,743 B. 70,005,743 C. 70,050,743 D. 7,005,743

c. If $x + 7 = 20$ , then $x =$ _____

A. 13 B. 27 C. 30 D. 34

d. 7 dm , 5 cm = _____ cm

A. 12 B. 705 C. 75 D. 750

e. 9 km , 9 m = _____ m

A. 99 B. 909 C. 9,009 D. 90,009

**4.** Find the result.

a. 3,562 + 867 = _____

b. 86,782 − 19,329 = _____

c. 10,000 − 7,426 = _____

## Cumulative Assessment 12 Till lesson 2 unit 3

**1.** **Convert the masses into the units on the bar models.**

a.

| 8,782 g | |
|---|---|
| ___ kg | ___ g |

b.

| 29,419 g | |
|---|---|
| ___ kg | ___ g |

c.

| ___ g | |
|---|---|
| 52 kg | 34 g |

**2.** **Complete.**

a. 76 cm = ___ dm , ___ cm

b. 8,875 g = ___ kg , ___ g

c. The smallest 7-digit number formed from 7 , 0 , 3 , 9 , 8 , 2 , 4 is ___

d. 37,852 ≈ ___ (Round to the nearest thousand)

e. 7 cm , 4 mm = ___ mm

f. 2 km = ___ mm

**3.** A car covers 2 km in one minute , what is the distance the car covers for 8 minutes in kilometers and in meters ?

**4.** List 21,000 g , 17 kg , 23,000 g , 25 kg from least to greatest

**5.** **Write (< , > or =).**

a. 37,865 ◯ three hundred thousand, eight hundred forty-five

b. 5 km , 30 m ◯ 5,030 m

c. 700 g ◯ 17 kg

d. 19 dm ◯ 89 cm

## Cumulative Assessment 13 Till lesson 3 unit 3

**1. Find each missing number.**

a. 3,450 mL = _____ L , _____ mL

b. 7,482 cm = _____ m , _____ cm

c. _____ mL = 7 L , 15 mL

d. 25,000 mL = _____ L

e. 3,729 g = _____ kg , _____ g

**2. Choose the correct answer.**

a. In which number does the 5 have a value of fifty thousand ?

A. 3,765,432 B. 7,452,173 C. 8,521,641 D. 5,421,698

b. Which of the following is the least capacity ?

A. 7,000 mL B. 15 L C. 2,500 mL D. 4,200 mL

c. The place value of the digit 6 in the number 3,562,147,209

A. ten million B. Million C. 60,000,000 D. 6,000,000

d. 7,800 g ☐ 24 kg

A. > B. < C. =

e. The compose to (4 × 100,000) + (2 × 10,000) + (7 × 100) + (2 × 1) is _____

A. 4,272 B. 420,720 C. 420,702 D. 42,702

**3.** A car was filled with 25 liters , 400 millileters. At the end of the day there were 10 liters 230 milliliters left in the tank. How much petrol was used ?

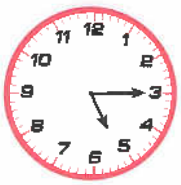
**4.** Use properties of addition to find the result and name the property you used.

18 + 35 + 82 + 15 _____

**5.** Write four numbers that could be rounded to 340,000 when rounded to the nearest ten thousand.

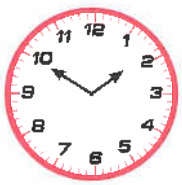
## Cumulative Assessment 14 Till lessons (5 & 6) unit 3

**1.** Write the time in two ways.

a. 

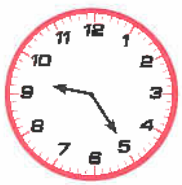
___ : ___

It's _____

b. 

___ : ___

It's _____

c. 

___ : ___

It's _____

d. 

___ : ___

It's _____

**2.** Complete.

a. 3 L – 2,456 mL = _____ mL

b. 11 kg , 400 g + 3 kg , 250 g = _____ kg , _____ g

c. 3 minutes , 20 seconds = _____ seconds

d. 3 weeks , 4 days = _____ days

e. 723 cm = _____ m + _____ cm

f. 350 tens = _____ hundreds

g. 98 cm = _____ dm , _____ cm

**3.** Use the properties of addition to find the answer.

32 + 15 + 8 _____

**4.** Estimate using rounding to the nearest 1,000. Find the exact answer.

a. 37,562 + 3,781 = _____

b. 75,861 + 12,682 = _____

c. 35,714 + 7,642 = _____

d. 25,372 + 14,741 = _____

**5.** A television cartoon movie begins at 7 : 15 P.M. and ends at 8 : 10 P.M. Find the elapsed time.

_____

## Cumulative Assessment 15 Till lesson 7 unit 3

**1. Complete the bar models.**

a.

| 73,785 m | |
|---|---|
| ___ km | ___ m |

b.

| ___ mL | |
|---|---|
| 32 L | 56 mL |

c.

| 7,456 | |
|---|---|
| ___ | 3,721 |

d.

| 7,421 g | |
|---|---|
| ___ kg | ___ g |

e.

| ___ | |
|---|---|
| 782 | 451 |

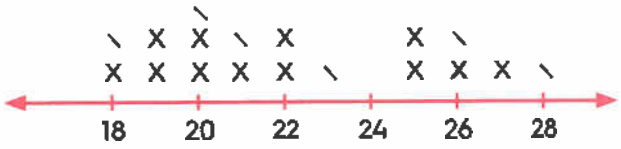
f.

| 920 cm | |
|---|---|
| ___ m | ___ cm |

**2. Use the line plot to answer the questions.**

Players' ages of football team

Key x = 2 players




Ages

a. What does this line plot show ?

b. What is the scale for this line plot ?

c. What does each x represent ?

d. How many players in the team are 20 years ?

e. How many players are represented in all ?

**3. Complete.**

a. The place value of the digit 8 in the number 3,856,421,912 is _____

b. 700 cm = _____ dm

c. 5 L + 2,462 mL = _____ L , _____ mL

d. 3 weeks , 2 days = _____ days

e. 751 + 21 = 21 + ___ [_____ property]

f. The smallest 6-digit number is _____

g. 3,000 dm = _____ m

## Cumulative Assessment 16 Till lesson 8 unit 3

**1. Choose the correct answer.**

a. 7,000 mm = _____ m

A. 7 B. 70 C. 700 D. 7,000

b. 35,000 tens = _____ hundreds.

A. 35 B. 350 C. 3,500 D. 35,000

c. [7 × 10,000] + [4 × 1,000] + [5 × 100] + [3 × 10] ___ 7,453

A. > B. < C. =

d. In the opposite bar model , x = _____

| 78,526 g | |
|---|---|
| 78 kg | x |

A. 526 kg B. 526 g

C. 526 m D. 526 mL

e. 3 : 40 + 30 minutes = _____

A. 4 : 10 B. 4 : 50 C. 3 : 20 D. 7 : 40

**2.** Ahmed bought 5 m , 50 cm of cloth , he made a trausers by 2 m , 25 cm

What is the length of the left cloth with him ?

_____

**3.** The mass of Mina is 43 kg , 450 g and the mass of Sara is 34 kg , 900 g

What is the total mass of Mina and Sara ?

_____

**4. Complete.**

a. 16 dm = _____ cm

b. 4 L , 240 mL – 2 L , 420 mL = _____ mL

c. If x – 342 = 741 , then x = _____

d. 78,000 cm = _____ m

e. 5 days = _____ hours

**5. Write the time in two ways.**

a.



_____ : _____

It's _____

b.



_____ : _____

It's _____

## Cumulative Assessment 17 Till lesson 9 unit 3

**1. Choose the correct answer.**

a. 10 kilograms = _____ grams

A. 10 B. 100 C. 1,000 D. 10,000

b. 8 L , 35 mL = _____ mL.

A. 835 B. 8,350 C. 8,035 D. 83,500

c. The place value of the digit 8 in the numeral 8,406,261,092 is _____

A. Thousand B. Ten Million C. Hundred Million D. Milliard

d. 7 : 25 – 40 minutes = _____

A. 8 : 05 B. 6 : 45 C. 5 : 25 D. 6 : 25

e. _____ m = 9,700 cm

A. 97 B. 970 C. 9,700 D. 97,000

**2.** Youssef studies 30 minutes every day. How many hours will he study in 6 days ?

_____

**3.** A tank with capacity of 70 liters is filled with 25,000 milliliters of water.

How many more liters of water are needed to fill it up completely ? _____

**4.** Solve the problem using counting down using number line with decomposing strategy

785 – 462

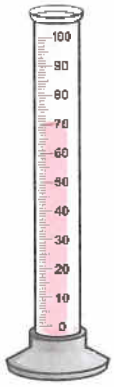
**5. Complete.**

a. 78,456 ≈ _____ [to the nearest ten]

b. 3 L , 270 mL + 5 L , 980 mL = _____ L , _____ mL

c. If the total mass of 10 balls having the same mass is 120,000 grams , then the mass of each ball is _____ kg.

d. There is _____ mL of liquid in the opposite graduated cylinder.

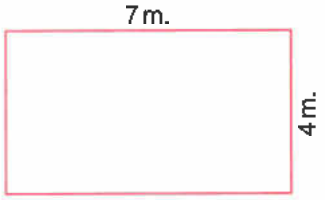


# Cumulative Assessments on UNIT 4

## Cumulative Assessment 18 Till lesson 1 unit 4

**1. Calculate the perimeter of each of the following shapes "Use two different formulas to solve each problem" show your work.**

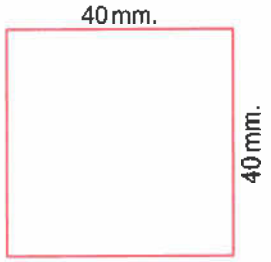
**a.**




First formula _____

Second formula _____

**b.**




First formula _____

Second formula _____

**2. Complete :**

**a.** 3 : 15 + 2 : 50 = _____

**b.** A rectangle of 12 m length and 8 m width , its perimeter is _____ m

**c.** A square of side length 70 cm , its perimeter = _____ cm

**d.** _____ mL = 5 L , 34 mL

**e.** 39 + 0 = _____ [ _____ property)

**f.** 35,000 = _____ Hundreds

**3.** Shady is building a rectangle frame. Its length is 42 millimeters long. and its width is 32 millimeters. What will the perimeter of the frame be ?

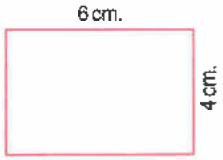
**4. Compare Write (< , > or =).**

| | | |
|---|---|---|
| **a.** 3 meters | ◯ | 300 cm |
| **b.** 7,456,291 | ◯ | 330 thousand |
| **c.** 6 L , 500 mL | ◯ | 6,070 L |
| **d.** 4 weeks | ◯ | 30 days |
| **e.** The perimeter of a square of side length 7 cm. | ◯ | The perimeter of a rectangle whose length is 8 cm and width 6 cm. |

## Cumulative Assessment 19 Till lesson 2 unit 4

**1. Find the area and the perimeter of each of the following figures.**

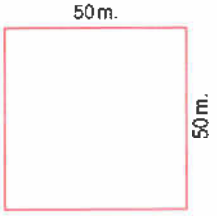
**a.**




Area = _____

Perimeter = _____

**b.**




Area = _____

Perimeter = _____

**c.**




Area = _____

Perimeter = _____

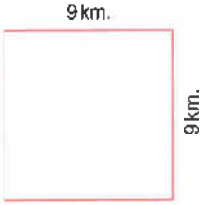
**d.**




Area = _____

Perimeter = _____

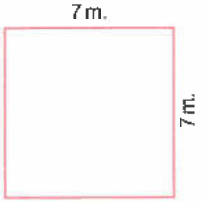
**e.**




Area = _____

Perimeter = _____

**f.**




Area = _____

Perimeter = _____

**2. Subtract mentally. Use counting (Add to subtract) strategy. Show your steps.**

**a.** 123 – 49 **b.** 84,582 – 9,431

**3. Put (✓) to the correct statement and (✗) to the incorrect statement.**

**a.** The perimeter of the square = s × s ( )

**b.** 3 L , 25 mL = 325 mL ( )

**c.** The place value of the digit 8 in the number 7,856,462,941 is hundred million ( )

**d.** The smallest 6-different digit number is 123456 ( )

**4. Sketch two rectangles, the area of each one is 12 $cm^2$. Find the perimeter of each.**

**a.**

P = _____

**b.**

P = _____

## Cumulative Assessment 20 Till lesson 3 unit 4

**1.** Complete each of the following.

a. A square has a perimeter 24 cm , then its area is _____

b. A square of area 25 $cm^2$ , then its side length is _____

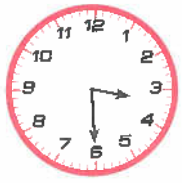
c. The area of a rectangle is 32 $m^2$ and its length is 8 m , then its width is _____

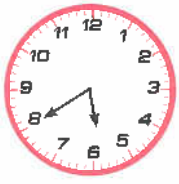
d. 3 : 25 + 6 : 42 = _____

e. 37,856 ≈ _____ [Round to the nearest 1,000]

**2.** Write the time in two ways.

a.  _____ : _____ It's _____

b.  _____ : _____ It's _____

c.  _____ : _____ It's _____

d.  _____ : _____ It's _____

**3.** Compare : Write (< , > or =).

| | | |
|---|---|---|
| a. 372 + 5,482 | ◯ | 9,462 – 3,781 |
| b. The side length of a square of perimeter 20 cm. | ◯ | The side length of a square of area 49 $cm^2$. |
| c. The area of a rectangle of length 7 cm and width 8 cm | ◯ | The area of a square of side length 8 cm |
| d. 3 kg , 720 g | ◯ | 2 kg , 20 g + 1 kg , 7 g |
| e. 13,700 tens | ◯ | 3,200 hundreds |

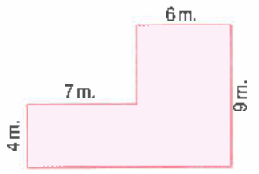
**4.** A rectangle of perimeter 20 cm. and its length is 6 cm. Find its area.

**5.** A colony of ants eats approximately 2,000 grams of food each day. If the ants have 10 kilograms of food stored , how many days will the food last ?

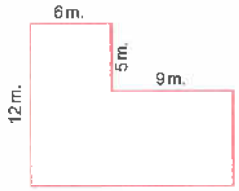
## Cumulative Assessment 21 Till lesson 4 unit 4

**1. Complete :**

a. The perimeter of the opposite complex figure equals _____ m




b. The area of the opposite complex figure equals _____ $m^2$




c. 7,000 g = _____ kg

d. The value of the digit 5 in 5,321,647 is _____

e. 75 dm = _____ m , _____ dm

f. The value of the digit 0 in the number 769,423,018 is _____

**2. Choose the correct answer :**

a. 59,764 < _____

A. 59,000 B. 49,999 C. 59,765 D. 59,763

b. Hany wrote 325 + 0 = 325 , using the _____ property.

A. commutative B. associative C. additive identity D. distributive

c. [3 × 1000] + [3 × 10] = _____

A. 330 B. 3,030 C. 3,300 D. 30,030

d. The perimeter of a rectangle with 7 cm long and 3 cm wide equal _____

A. 21 cm B. 20 m C. 21 $cm^2$ D. 20 cm

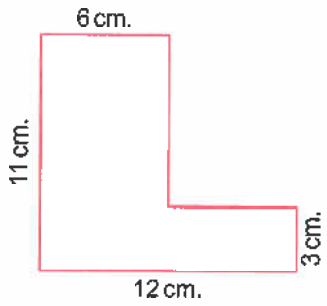
**3. Find the result.**

a. 2,456 – 1,999

b. 356 – 149

**4. Find the area and the perimeter of these shapes.**

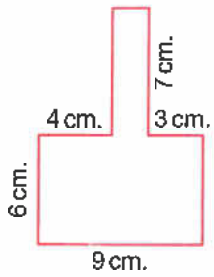
**a.**




Area = _____

Perimeter = _____

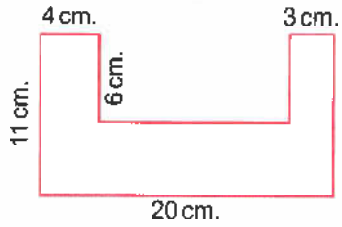
**b.**




Area = _____

Perimeter = _____

**c.**



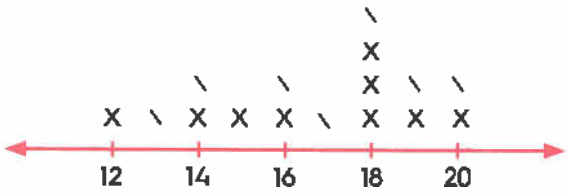

Area = _____

Perimeter = _____

**5. Use the line plot to answer the following :**

Marks of students in an exam

Key: X = 2 students




**Marks**

a. What is the scale for this line plot ?

b. How many students got 16 marks ?

c. How many students got less than 14 marks ?

# Cumulative Assessments on UNIT 5

## Cumulative Assessment 22 Till lesson 1 unit 5

**1.** Choose the correct answer.

**a.** 42 is _____ times the number 6.

A. 6 B. 7 C. 8 D. 9

**b.** 8 + 8 + 8 + 8 + 8 = _____

A. 8 × 8 = 64 B. 4 × 8 = 32 C. 6 × 8 = 48 D. 5 × 8 = 40

**c.** 7,000 + 600 + 20 + 1 > _____

A. 7,921 B. 8,006 C. 6,997 D. 9,300

**d.** _____ mL = 3 L, 124 mL

A. 3,124 B. 3,024 C. 1,243 D. 1,324

**2.** Complete.

**a.** 24 is _____ times the number 8.

**b.** The multiplicative comparison statement for

| 9 | 9 | 9 | 9 | 9 | 9 |
|---|---|---|---|---|---|

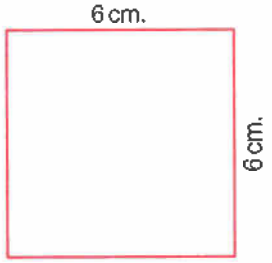
_____ is _____ times the number 9.

**c.** 4 days = _____ hours.

**d.** 10 + 10 + 10 + 10 = _____ × _____ = _____

**3.** Find the area and the perimeter of each of the following figures.

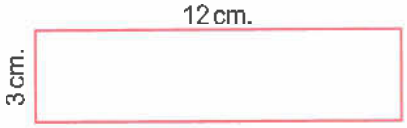
**a.**




Area = _____

Perimeter = _____

**b.**




Area = _____

Perimeter = _____

**4.** Compare , write the method you used.

**a.** 64 and 8 _____

**b.** 36 and 4 _____

## Cumulative Assessment 23 Till lessons (2 & 3) unit 5

**1.** **Write an equation for each comparison statement.**
**Use a letter to represent the unknown. Solve the equation.**

a. A number is 6 times the number 5

b. 40 is 5 times a number.

c. 70 is how many times the number 10 ?

d. 36 is 6 times a number.

**2.** **Solve.**

a. $n = 2 \times 8$

b. $7 \times k = 49$

c. $b \times 9 = 72$

d. $3 \times 10 = a$

**3.** **Choose the correct answer.**

a. 9 m – 80 cm = ____ cm.

A. 800 B. 820 C. 720 D. 980

b. If $z \times 8 = 32$ , then $z =$ _____

A. 4 B. 8 C. 2 D. 3

c. $341 + 596 =$ _____

A. 837 B. 997 C. 937 D. 255

d. What number is 8 times the number 12 ?

A. 120 B. 80 C. 128 D. 96

## Cumulative Assessment 24 Till lessons (4 & 5) unit 5

**1.** Complete .

a. $30 \times$ _____ $= 5 \times 30$

b. $3 \times 2{,}000 =$ _____

c. $3\text{ L} + 155\text{ mL} =$ _____ mL

d. $980 \times 0 =$ _____

e. $1 \times 65 =$ _____

f. $18{,}000 =$ _____ Thousands.

**2.** Choose the correct answer.

a. $18 \times 10 =$ _____

A. 28 B. 108 C. 1,180 D. 180

b. $80 \times 7 =$ _____

A. 560 B. 56 C. 5,600 D. 87

c. 5,000 m = _____ km.

A. 50 B. 500 C. 55 D. 5

d. The perimeter of the rectangle with 8 cm long and 4 cm wide equals _____ cm.

A. 24 B. 12 C. 32 D. 16

**3.** Put (< , > or =).

a. 7 kg , 40 g ◯ 6 kg , 550 g

b. $1 \times 258$ ◯ $1 + 258$

c. $3 \times 200$ ◯ $300 \times 2$

d. $8 \times 6$ ◯ $6 \times 8$

**4.** Martin has 36 marbles. Write an equation using the commutative property of Multiplication to describe two ways he can arrange them.

_____

**5.** Hany bought 4 mobiles , the price of each mobile is 3,000 pounds. How much did Hany pay ?

_____

## Cumulative Assessment 25 Till lessons (7 & 8) unit 5

**1.** Solve each problem.

a. $4 \times (3 \times 3) =$ _____ = _____

b. $6 \times (2 \times 5) =$ _____ = _____

c. $(4 \times 2) \times 7 =$ _____ = _____

d. $(9 \times 10) \times 3 =$ _____ = _____

e. $(5 \times 8) \times 5 =$ _____ = _____

f. $8 \times (6 \times 10) =$ _____ = _____

g. $10 \times (7 \times 6) =$ _____ = _____

h. $7 \times (3 \times 4) =$ _____ = _____

**2.** Complete.

a. 270 = ____ Tens.

b. The time  is ___ : ___

c. 18,000 = _____ Hundreds

d. 80 = _____ × 10

**3.** Use decomposing and the Associative Property of Multiplication to solve.

a. $8 \times 300 =$ _____

b. $5 \times 7{,}000 =$ _____

**4.** Ayman has 5 bags , each bag has 8 packs of coloring pencils , if each pack has 6 coloring pencils. How many pencils Ayman has ?

_____

**5.** Choose the correct answer.

a. $7{,}000{,}000 + 800{,}000 + 3{,}000 + 60 =$ _____

A. 7,803,060 B. 7,830,600 C. 8,703,006 D. 7,803,006

b. $2 \times 6 \times 100 =$ _____

A. 120 B. 1,200 C. 12,000 D. 612

c. $26{,}473 \simeq$ _____ (to the nearest ten)

A. 26,400 B. 26,470 C. 26,000 D. 26,500

d. $3{,}582 + 5{,}076 =$

A. 8,558 B. 8,568 C. 8,658 D. 8,865

# Cumulative Assessments on UNIT 6

## Cumulative Assessment 26 Till lessons (1 & 2) unit 6

**1. Choose the correct answer.**

a. 4 is a factor of _____

A. 14 B. 12 C. 22 D. 42

b. 30 = 5 × _____

A. 6 B. 5 C. 8 D. 7

c. 48 is 6 times the number _____

A. 6 B. 9 C. 7 D. 8

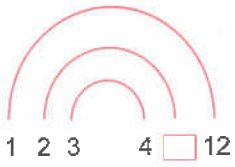
d. _____ is a factor of 27.

A. 4 B. 5 C. 9 D. 10

e. The missing factor in the factor rainbow is _____

A. 6 B. 12

C. 24 D. 36




**2. Complete.**

a. All factors of 6 are _____

b. _____ is the only even prime number.

c. 76 × 1,000 = _____

d. The value of 8 in the number 387,064,100 is _____

**3. Write.**

a. All the factors of 32

b. All the factors of 23

c. All the factors of 56

d. All prime numbers between 20 and 40

e. All composite numbers between 50 and 65

## Cumulative Assessment 27 Till lesson 3 unit 6

**1.** Write the common factors of each pair of numbers.

a. 12 and 28

b. 30 and 42

c. 19 and 8

d. 45 and 27

**2.** Complete.

a. GCF of 18 and 40 is _____

b. $100 \times 24 =$ _____

c. $(5 \times 8) \times 7 =$ _____ × _____ = _____

d. GCF of 10 and 25 is _____

**3.** Bassem has 48 pens and 40 pencils , he wants to put them in packs so that each pack has the same number of pens and the same number of pencils. What is the greatest number of packs ? What is the number of pens and pencils of each pack ?

**4.** Choose the correct answer.

a. The common factor of all numbers is _____

A. 1 B. 0 C. 2 D. 10

b. 38,265 m < _____

A. 38 km B. 38 km + 100 m C. 83 km D. 83 m

c. 3 and 7 are factors of _____

A. 36 B. 18 C. 35 D. 42

d. $7 + 7 + 7 + 7 =$ _____

A. $4 \times 7$ B. $7 + 4$ C. $7 \times 7$ D. $7 + 7$

## Cumulative Assessment 28 Till lessons (4 & 5) unit 6

**1.** **List.**

a. All multiples of 3 up to 30

b. All multiples of 9 up to 70

c. All factors of 36

d. Two common multiples of 2 and 5

**2.** **Choose the correct answer.**

a. 38,294,182 rounded to the nearest Hundred thousand is _____

A. 38,200,000 B. 30,000,000 C. 38,290,000 D. 38,300,000

b. _____ is a multiple of 8.

A. 56 B. 42 C. 36 D. 18

c. _____ is not a multiple of 6.

A. 36 B. 0 C. 26 D. 24

d. 0 is a common multiple of _____

A. 10 and 8 only. B. all numbers. C. 6 and 9 only. D. 4 and 5 only.

**3.** Bassem has a swimming practice every five days of July , beginning July 5
How many times he will go to his practice in July ?

**4.** Write the multiples of 6 and 8 up to 50 , then write the common multiples between them.

## Cumulative Assessment 29 Till lesson 6 unit 6

**1. Complete.**

a. 15 is a multiple of 5 , then _____ is a factor of _____

b. Write 3 factors of 36 _____ , _____ , _____

c. 3 × 20 = _____ × 3

d. 280,000 = _____ Thousands.

**2. Choose the correct answer.**

a. 27 is a multiple of _____

A. 7 B. 9 C. 6 D. 2

b. 8 is a multiple of _____ and _____

A. 2 , 6 B. 4 , 12 C. 4 , 8 D. 8 , 16

c. If 5 × a = 35 , then a = _____

A. 7 B. 5 C. 6 D. 8

d. GCF of 36 and 24 is _____

A. 8 B. 12 C. 9 D. 6

**3.** a. The number is an even number , it is a multiple of 3 and 5 and lies between 20 and 40 What number is it ?

b. The number is an odd number , it is a multiple of 3 and a factor of 18 and lies between 5 and 15. What number is it ?

**4. Find the relationship between the numbers in each group. Write at least two sentences describing the relationships.**

a. 2 , 5 and 10

b. 4 , 6 , 12 and 30

# Cumulative Assessments on UNIT 7

## Cumulative Assessment 30 Till lessons (1 & 2) unit 7

**1.** Solve.

a. $5 \times 73$ _____

b. $61 \times 9$ _____

c. $46 \times 4$ _____

d. $7 \times 83$ _____

**2.** Complete.

a. $4 \times 95 = [4 \times$ _____ $] + [4 \times$ _____ $]$

b. $8 \times 20 =$ _____ $\times 8 =$ _____

c. $a \times 6 = 48$ , then $a =$ _____

d. $2 \times 1{,}730 = 2 \times$ _____ $+ 2 \times$ _____ $+ 2 \times$ _____

**3.** Martin bought 7 packs of candies , each pack holds 45 candies. How many candies with Martin ?

_____

**4.** Choose the correct answer.

a. The area model

| $\times$ | 60 | 5 |
|---|---|---|
| 8 | | |

represents _____

A. $[8 \times 60] + [8 \times 50]$ B. $[8 \times 60] + [8 \times 5]$

C. $[8 \times 6] + [8 \times 5]$ D. $[8 \times 6] + [8 \times 50]$

b. _____ is a factor of 42.

A. 3 B. 12 C. 8 D. 9

c. The area model

| $\times$ | 70 | 6 |
|---|---|---|
| 7 | 490 | 42 |

equals _____

A. 532 B. 523 C. 530 D. 352

d. $28{,}325 - 19{,}742 =$ _____

A. 8,580 B. 5,883 C. 8,853 D. 8,583

## Cumulative Assessment 31 Till lessons (3 & 4) unit 7

**1.** Solve using partial products algorithm.

a. $9 \times 78$

b. $642 \times 4$

**2.** Put (< , > or =).

a. $2 \times 6{,}381$ ◯ $8 \times 1{,}809$

b. $700 \times 9$ ◯ $900 \times 7$

c. 6,300 g ◯ 6 kg , 70 g

d. $5 \times 413$ ◯ $4 \times 508$

**3.** Solve.

a. $87 \times 6$

b. $3 \times 762$

c. $5 \times 4{,}116$

d. $21{,}463 + 46{,}098$

**4.** Complete.

a. The value of the digit 5 in the number 354,621 is _____

b. The perimeter of the square whose side length is 9 cm is _____ cm.

c. GCF of 28 and 42 is _____

d. $7 \times 1{,}280 =$ _____

e. 7 kg = _____ grams.

f. 6 m – 50 cm = _____ cm

## Cumulative Assessment 32 Till lessons (6 & 7) unit 7

**1.** Choose the correct answer.

a. $13 \times 42 =$ _____

A. 564 B. 654 C. 546 D. 465

b. $60 \times 70 =$ _____

A. 420 B. 4,200 C. 42,000 D. 2,400

c. 30 is a common multiple of _____

A. 5 and 4 B. 6 and 9 C. 3 and 8 D. 5 and 3

d. $51 \times 80 =$ _____

A. 4,080 B. 8,040 C. 4,800 D. 1,808

**2.** Create an area model to solve.

a. $37 \times 41$

| × | | |
|---|---|---|
| | | |
| | | |

b. $93 \times 29$

| × | | |
|---|---|---|
| | | |
| | | |

**3.** Complete.

a. $20 \times 66 =$ _____

b. If $6{,}426 + k = 10{,}384$, then $k =$ _____

c. $3 \times 32 = 32 \times 3$ the property used is _____

d. $24 \times 24 =$ _____

**4.** a. Dina bought 25 kg of mango and the price of 1 kg is 36 pounds. How much did Dina pay ?

b. Write three numbers that round to 38,000

## Cumulative Assessment 33 Till lesson 8 unit 7

**1. Complete.**

a. $73 \times 12 =$ _____

b. $48 \times 56 =$ _____

c. $50 = 5 \times$ _____

d. $60 \times 80 =$ _____

e. $18 \times 38 =$ _____

f. $5 \times 86 = [5 \times$ _____ $] + [5 \times 6]$

**2. Choose the correct answer.**

a. 7 is a factor of _____

A. 36 B. 42 C. 22 D. 27

b. $29 \times 96 =$ _____

A. 2,748 B. 2,784 C. 7,284 D. 2,874

c. $86 \times 8 =$ _____

A. 688 B. 886 C. 868 D. 588

d. _____ is a common multiple for 8 , 6

A. 28 B. 36 C. 24 D. 42

e. Three milliard in the standard form is _____

A. 3,000,000 B. 300,000 C. 3,000,000,000 D. 300,000,000

f. $[45 \times 20] + [45 \times$ _____ $] = 45 \times 28$

A. 80 B. 28 C. 8 D. 82

**3.** Hany has a factory , his factory produces 75 toys every hour. How many toys does the factory produce in 12 hours ?

**4.** A rectangular flowerbed in the city park has an area 15 square meters. The width of the flowerbed is 3 meters. What is the length of the flowerbed ?

## Cumulative Assessment 34 Till lesson 10 unit 7

**1. Find the quotient and the remainder.**

a. 29 ÷ 5 = _____ R _____

b. 62 ÷ 8 = _____ R _____

c. 58 ÷ 6 = _____ R _____

d. 82 ÷ 9 = _____ R _____

e. 45 ÷ 7 = _____ R _____

f. 36 ÷ 4 = _____ R _____

g. 72 ÷ 6 = _____ R _____

h. 96 ÷ 4 = _____ R _____

**2. Complete.**

a. 30 ÷ 6 = _____

b. The place value of 0 in 70,263,458 is _____

c. The remainder from 78 ÷ 8 is _____

d. All factors of 23 are _____

e. 38 ÷ 6 = _____ R 2

**3.** Hany has 64 pounds , he wants to give the money to his three sons , how can he share the money equally ? What is the remainder ?

_____

**4. Choose the correct answer.**

a. 18 ÷ 5 = _____

A. 3 R 0 B. 5 R 3 C. 3 R 3 D. 5 R 0

b. 48 × 21 > _____

A. 23 × 36 B. 54 × 32 C. 18 × 62 D. 30 × 35

c. 30 ÷ _____ = 7 R 2

A. 6 B. 5 C. 4 D. 7

d. 12 is a factor of _____

A. 24 B. 16 C. 28 D. 32

e. 97 ÷ 10 = _____

A. 7 R 9 B. 9 R 5 C. 9 R 7 D. 7 R 5

## Cumulative Assessment 35 Till lesson 11 unit 7

**1.** Complete.

a. $800 \div 4 =$ _____

b. $9{,}000 \div 9 =$ _____

c. $42{,}000 \div 7 =$ _____

d. $86 \div 7 =$ _____ R _____

e. $28 \times 14 =$ _____

f. GCF of 22 and 33 is _____

g. $1{,}500 \div 3 =$ _____

h. 7 L and 280 mL = _____ mL

**2.** Choose the correct answer.

a. $480 \div$ _____ $= 80$

A. 6 B. 60 C. 7 D. 8

b. $30{,}000 \div 5 =$ _____

A. 600 B. 60 C. 6 D. 6,000

c. A rectangle of length 18 cm and width 12 cm , then its area equals _____

A. 216 cm B. 216 $cm^2$ C. 126 $cm^2$ D. 126 cm

d. _____ hundreds $\div$ 4 tens = 5 tens

A. 200 B. 20 C. 2 D. 2,000

**3.** There are 320 tourists want to be seated in 8 buses. How many tourists are in each bus ?

_____

**4.** Use the pattern and place value to find the quotient.

a. $8 \div 4 =$ _____
$80 \div 4 =$ _____
$800 \div 4 =$ _____
$8{,}000 \div 4 =$ _____

b. $15 \div 5 =$ _____
$150 \div 5 =$ _____
$1{,}500 \div 5 =$ _____
$15{,}000 \div 5 =$ _____

c. $24 \div 6 =$ _____
$240 \div 6 =$ _____
$2{,}400 \div 6 =$ _____
$24{,}000 \div 6 =$ _____

d. $40 \div 8 =$ _____
$400 \div 8 =$ _____
$4{,}000 \div 8 =$ _____
$40{,}000 \div 8 =$ _____

## Cumulative Assessment 36 Till lesson 12 unit 7

**1.** Use the area model to solve each of the following.

a. $84 \div 3$

b. $75 \div 5$

c. $74 \div 4$

d. $216 \div 6$

**2.** Solve :

a. $52 \div 2 =$ _____

b. $38 \times 53 =$ _____

c. $3{,}529 - 2{,}284 =$ _____

d. $393 \div 3 =$ _____

**3.** Choose the correct answer.

a. $95 \div 6 =$ _____

A. 15 R 5 B. 15 R 0 C. 5 R 0 D. 16 R 0

b. $251 + 123 = 123 + 251$ is the _____ property.

A. additive identity B. commutative

C. associative D. distributive

c. 48 is not a multiple of _____

A. 6 B. 8 C. 4 D. 9

d. $147 \div 7 =$ _____

A. 22 B. 21 C. 24 D. 17

## Cumulative Assessment 37 Till lessons (13 & 14) unit 7

**1.** Divide using partial quotient algorithm.

a. $89 \div 3$

b. $628 \div 4$

c. $2{,}374 \div 6$

**2.** Divide using standard division algorithm.

a. $835 \div 5$

b. $4{,}258 \div 7$

c. $6{,}660 \div 9$

**3.** Complete.

a. _____ $\div 3 = 54$

b. $1{,}342 \div 8 =$ _____ R _____

c. $9{,}880$ cm = _____ m , _____ cm.

d. _____ is a common multiple of all numbers.

**4.** Match.

| | | | |
|---|---|---|---|
| a. | $372 \div 2$ | 1. | $3 \times 86$ |
| b. | $17{,}621 - 17{,}386$ | 2. | $900 \times 3$ |
| c. | $[3 \times 80] + [3 \times 6]$ | 3. | 186 |
| d. | $30 \times 90$ | 4. | 235 |

## Cumulative Assessment 38 Till lesson 15 unit 7

**1. Choose the correct answer.**

a. If 73 × 8 = 584 , then 584 ÷ 8 = _____

A. 78 B. 73 C. 83 D. 87

b. In the problem 3,467 ÷ 5 , the quotient is between _____ and _____

A. 400 , 500 B. 300 , 400 C. 600 , 800 D. 1,000 , 2,000

c. 54 is 6 times the number

A. 9 B. 8 C. 7 D. 6

d. 4,120 ÷ 4 =

A. 1,300 B. 1,003 C. 1,030 D. 103

e. 3,264 ÷ 3 = _____

A. 1,622 B. 1,880 C. 1,088 D. 1,808

**2. Complete.**

a. The division problem for 281 × 6 = 1,686 is _____

b. 922 ÷ 3 = R _____

c. 23 × 44 = _____

d. 7 × 362 = 7 × _____ + 7 × _____ + 7 × _____

e. If 641 × 7 = 4,487 , then 4,487 ÷ 7 = _____

f. The value of the digit 3 in 1,372,006,541 is _____

**3.** Amal has 358 L.E. She divided the money between her 2 children , what is the share of each one ?

**4.** Write the division problem that matches the multiplication problem.

a. 421 × 6 = 2,526

□ ÷ □ = □

b. 382 × 2 = 768

□ ÷ □ = □

c. 652 × 8 = 5,216

□ ÷ □ = □

d. 578 × 4 = 2,312

□ ÷ □ = □

# Cumulative Assessments on UNIT 8

## Cumulative Assessment 39 Till lessons (2 to 4) unit 8

**1.** Find the value of each of the following.

a. $6 + 3 \times 4 - 5 =$ _____

b. $8 + [12 - 5] \times 3 =$ _____

c. $29 \times 51 =$ _____

d. $3{,}602 \div 4 =$ _____

e. $15{,}372 + 203{,}981 =$ _____

f. $4 \times 6 \div 8 + 7 =$ _____

**2.** Complete.

a. $36 - [4 + 2] \times 5 =$ _____

b. 4 days = _____ hours.

c. $3 + 15 \div 3 + 5 =$ _____

d. $28 \times 70 =$ _____

e. $[5 \times 1{,}000{,}000] + [8 \times 1{,}000] + [4 \times 10] =$ _____

f. $4{,}369 \approx$ _____ [to the nearest 100]

**3.** Choose the correct answer.

a. $30 \div 6 + 9 - 4 =$ _____

A. 15 B. 12 C. 10 D. 9

b. 320 hundreds = _____ thousands.

A. 32 B. 320 C. 3,200 D. 32,000

c. $51 + 17 + 69 + 63 =$ _____

A. 180 B. 200 C. 190 D. 220

d. $3 \times 9 - [10 - 3] \times 2 =$ _____

A. 27 B. 30 C. 15 D. 13

e. $30 \div 6 + 4 - 2 \times 3 =$ _____

A. 3 B. 6 C. 9 D. 40

f. $18 - x = 6$, then $x =$ _____

A. 4 B. 12 C. 3 D. 2

**4.** A group of 330 tourists wants to travel to Luxor, 154 tourists will take the train, the rest will take microbuses, each microbus holds 8 seats.
How many microbuses will be needed?

# Directorates Exams

## 1 Cairo Governorate

Heliopolis Educational Zone
Mathematics Inspection

**1. Choose the correct answer :**

**a.** * 3,570 ÷ 3 = .....

A. 1,260 B. 1,190 C. 1,193 D. 1,910

**b.** Which of the following is NOT a multiple of 7 ?

A. 42 B. 63 C. 707 D. 27

**c.** 423 cm = _____

A. 23 m , 4 cm B. 42 m , 3 cm C. 4 m , 23 cm D. 3 m , 42 cm

**2. Complete :**

**a.** 3,000 – B = 2,000 , then the value of B = .....

**b.** 3 × 5 – 2 = _____

**c.** The number 163,518,943 to the nearest million is _____

**3. Put (✓) for the correct statement and (✗) for the incorrect statement.**

**a.** * The following area model represents 87 ÷ 4 = 21 R 3 ( )

| 4 | 4 × 20 = 80 | 4 × 1 = 4 | |
|---|---|---|---|
| | 20 | 1 | R 3 |

**b.** 2 is a prime number. ( )

**4. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| [A] | [B] |
|---|---|
| **a.** 600,000 + 5,000 + 212 = _____ | 650,021,000 |
| **b.** A square whose side is 5 cm , then its perimeter = ..... cm | 120 |
| **c.** 7 liters, 150 milliliters – 780 milliliters = ..... milliliters. | 20 |
| **d.** Standard form of a number [six hundred fifty million and twenty-one thousand] is _____ | 605,212 |
| **e.** A school with 300 students in the fourth grade of primary school, if the number of boys is 180, then the number of girls = ..... girls | 6,370 |

**5. Answer the following questions :**

a. Samir and Mohamed participated in a project. Samir paid 342,650 pounds. If the cost of the project is 668,500 pounds , how much did Mohamed pay ?

b. Rectangular gymnasium 7 meters long and 4 meters wide. Find its perimeter.

## 2 Cairo Governorate

Khalifa and Mokattem E. Zone
Mathematics Guidance

**1. Put (✓) for the correct statement and (✗) for the incorrect statement.**

a. The GCF of 20 and 30 is 4 ( )

b. Rounding the number : 8,532 to the nearest 1,000 is approximately 8,000 ( )

c. ✳ When we divide 35 by 6 the quotient is 6 and the remainder is 5 ( )

**2. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| (A) | (B) |
|---|---|
| a. A school with 300 students in the fourth grade of primary school , if the number of boys is 180 , then the number of girls = _____ girl. | 20 |
| b. A square whose side is 5 cm. , then its perimeter _____ cm | 5,000 |
| c. The value of the digit 5 in the numeral 4,125,081 is _____ | 120 |

**3. Complete :**

a. _____ is the only even prime number.

b. ✳ The divisor in 384 ÷ 8 = 48 is _____

**4. Choose the correct answer :**

a. A rectangle its length is (l) and its width is (w) , what is its perimeter _____

A. l + w B. l × w C. 2 × (l + w) D. (2 × l) + w

b. Which is NOT a common multiple of 9 and 6

A. 36 B. 54 C. 27 D. 18

c. 1 day and 5 hours = hours.

A. 29 B. 65 C. 15 D. 35

d. 13 + 0 = 13 , is

A. Associative Property B. Commutative Property

C. Additive Identity Property D. None of the above

e. ✳ What is the first step of solving 12 + 30 ÷ 6 ?

A. 12 + 30 B. 12 ÷ 6 C. 30 ÷ 6 D. 12 + 6

**5.** **Answer the following questions :**

**a.** A bridge of ants consists of 142 ants , and another bridge consists of 165 ants. How many ants are there in the two bridges together ?

**b.** Twenty-two passengers can fit on each river bus at a time. What is the maximum number of passengers the river bus can carry if it makes 5 trips ?

## 3 Giza Governorate

Dokki Educational Directorate
Maths Inspection

**1.** **Choose the correct answer :**

**a.** * Using the following area model , the quotient equals ……

| 7 | 7 × 200 = 1,400 | 7 × 3 = 21 |
|---|---|---|
| | 200 | 3 |

**A.** 230 **B.** 302 **C.** 203 **D.** 7

**b.** A rectangle its length = 8 cm , its width = 4 cm , then its area = …… $cm^2$

**A.** 32 **B.** 12 **C.** 24 **D.** 64

**c.** The population of a country is 56,724,033 , then the place value of the digit 6 is in ……

**A.** Thousand. **B.** Hundred Thousand.

**C.** Millions. **D.** Ten Million.

**d.** 13 + 0 = 13 , is ……

**A.** Associative Property **B.** Commutative Property

**C.** Additive Identity Property **D.** none of the above

**2.** **Complete :**

**a.** 650 mm = …… cm

**b.** The standard form of the numeral : three million , two hundred fourteen thousand, nine hundred thirty-six is ……

**c.** * 120 – [10 + 5] × 8 = ……

**3.** **Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| [A] | [B] |
|---|---|
| a. 5 minutes = …… seconds. | 102 |
| b. 15 kg = …… g | 300 |
| c. 17 × 6 = …… | 15,000 |

**4.** **Put (✓) for the correct statement and (✗) for the incorrect statement.**

**a.** * 214 ÷ 5 = 43 R 4 ( )

**b.** 3 is a factor of 12 ( )

**c.** The multiplication equation of 5 + 5 + 5 is 5 × 5 = 15 ( )

**5.** **Answer the following questions :**

**a.** **Find :** the GCF of 25 and 35

**b.** A road of 675 km. length. If a train traveled a distance of 239 km from this road. What is the remaining distance of the road.

## 4 Giza Governorate

6th October Educational Directorate Maths Inspection



**1.** **Choose the correct answer :**

**a.** A rectangle its length = 8 cm , its width = 4 cm , its area = ..... $cm^2$

A. 32 B. 12 C. 24 D. 64

**b.** 13 liters and 30 ml = ..... ml.

A. 1,330 B. 13,030 C. 43 D. 3,013

**c.** 45 is ..... times the number 5

A. 9 B. 6 C. 5 D. 40

**d.** What is the unknown value in the area model of 17 × 40 ?

A. 70 B. 140

C. 210 D. 17

| | 30 | 10 |
|---|---|---|
| 10 | 300 | 100 |
| 7 | 210 | ? |

**2.** **Complete :**

**a.** The standard form of the numeral : Three million, two hundred fourteen thousand, nine hundred thirty-six is .....

**b.** * When we divide 126 by 4 , the remainder is .....

**c.** ..... is the common factor for all numbers.

**3.** **Put (✓) for the correct statement and (✗) for the incorrect statement.**

**a.** * 5 + 6 – 2 × 2 = 9 ( )

**b.** The area of a square if its side length is 7 cm = 49 $cm^2$ ( )

**c.** The property : 5 × 8 = 8 × 5 called Commutative Property. ( )

**4.** **Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| (A) | (B) |
|---|---|
| a. A factor of 20 is ..... | 55 |
| b. The additive identity is ..... | 10 |
| c. A multiple of 11 is ..... | 0 |

**5.** **Answer the following questions :**

**a.** Ayman ate 4 figs in the morning. His older brother ate 3 times as many. How many figs did his brother eat ?

**b.** Write all factors of the number 24 , decide if the number is a prime or composite ?

## 5 Alexandria Governorate

West Educational Administration
Maths Inspection

**1. Choose the correct answer :**

**a.** Which number is the greatest common factor [GCF] of 12 and 6 ?

**A.** 2 **B.** 3 **C.** 6 **D.** 12

**b.** Using the relationship between units of length : Choose the correct answer to complete of the following table :

| Kilometer | meter | Centimeter |
|---|---|---|
| 60 | 6,000 | ? |

**A.** 600 **B.** 6,000 **C.** 60,000 **D.** 6,000,000

**c.** * Which of the following equals 9 ?

**A.** $25 \div 5 + 4$ **B.** $25 - 10 - 4$ **C.** $3 \times 3 + 2$ **D.** $8 - 2 \times 3 + 1$

**2. Complete :**

**a.** A rectangle has 4 cm. width , and 6 cm. length , then its area = _____ $cm^2$

**b.** The smallest odd prime number is _____

**c.** * $365 \div 6 =$ _____ R 5

**3. Put (✓) for the correct statement and (✗) for the incorrect statement.**

**a.** 1 dm. = 10 cm. ( )

**b.** $[5 \times 1] + [8 \times 1{,}000] + [4 \times 10{,}000] + [1 \times 10{,}000] = 1{,}485$ ( )

**c.** The prime number 5 the sum of its factors is 6 ( )

**4. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| [A] | [B] |
|---|---|
| **a.** A factor of 20 is _____ | 35 |
| **b.** The additive identity is | 10 |
| **c.** A multiple of 11 is _____ | 300 |
| **d.** 5 weeks = _____ days. | 0 |
| **e.** 5 minutes = _____ seconds. | 55 |

**5. Answer the following questions :**

**a.** * There are 64 children in the park. They want to make teams with 8 children in each team. How many teams they will make ?

**b.** Write all factors of the number 24 , decide if the number is a prime or composite ?

## 6 El-Kalyoubia Governorate — Maths Supervision

**1. Choose the correct answer :**

**a.** Which of the following represents the commutative property in addition ?

**A.** $635 + 492 = 492 + 635$ **B.** $0 + 847 = 847$

**C.** $[18 + 2] + 16 = 36$ **D.** $1 + 131 = 132$

**b.** * $5 + 3 \times [6 + 1] =$ ……

**A.** 15 **B.** 22 **C.** 56 **D.** 26

**c.** $35 \times 0 =$ ……

**A.** 0 **B.** 35 **C.** 350 **D.** 305

**d.** Which number is the greatest common factor [GCF] of 12 and 6 ?

**A.** 2 **B.** 3 **C.** 6 **D.** 12

**2. Complete :**

**a.** 35 kg. and 86 g. = …… g

**b.** * 8,008 ÷ 8 = ……

**c.** …… is the only even prime number.

**3. Put (✓) for the correct statement and (✗) for the incorrect statement.**

**a.** The common factor of all numbers is 1 ( )

**b.** * The first step of solving $30 - 3 \times 8 + 2$ is subtracting ( )

**c.** Any number that ends in 0 has a factor of 2, 5 and 10 ( )

**4. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| [A] | [B] |
|---|---|
| **a.** A square whose side length is 5 cm., then its perimeter = …… cm. | 650,021,000 |
| **b.** The number …… is equal to 10 times the number 75 | 20 |
| **c.** Standard form of a number : six hundred fifty million and twenty-one thousand is | 750 |

**5. Answer the following questions :**

**a.** A square picture with a side length of 8 cm. Hussein wants to make a piece of glass to cover this picture , what is the area of the glass piece ?

**b.** There are 6 people who won 145 pounds each at the fair.
How much money did they win all together ?

## 7 El-Sharkia Governorate

Dirab Nagm Educational Administration
Mathematics Inspection



**1. Choose the correct answer :**

**a.** Which equation would be best to include in an explanation of the commutative property of multiplication ?

**A.** $3 \times 1 = 3$ **B.** $9 \times 6 = 6 \times 9$

**C.** $6 \times [2 \times 4] = [6 \times 2] \times 4$ **D.** $5 \times 16 = [5 \times 11] + [5 \times 5]$

**b.** Subtraction : $613 - 247 =$ _____

**A.** 567 **B.** 434 **C.** 366 **D.** 807

**c.** * If we divided a number by 4 , the quotient is 15 and the remainder is 3 , then the number is _____

**A.** 18 **B.** 63 **C.** 22 **D.** 49

**2. Complete :**

**a.** _____ is the additive identity element.

**b.** * $10 + 6 \div 2 =$ _____

**c.** _____ m = 350 dm.

**3. Put (✓) for the correct statement and (✗) for the incorrect statement.**

**a.** The milliard is the smallest number made up of 10 different digits. ( )

**b.** The factors of 18 are 1 , 2 , 3 , 9 , 18 only. ( )

**c.** A piece of wallpaper its dimensions are 4 m , and 6 m Can this piece be used to cover a wall its dimensions 3 m , and 8 m ? ( )

**4. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| (A) | (B) |
|---|---|
| **a.** The number _____ is equal to 10 times the number 750 | 102 |
| **b.** Mona drank 4 liters of water, the amount she drank in milliliters is equal to _____ | 7,500 |
| **c.** $17 \times 6 =$ _____ | 4,000 |

**5. Answer the following questions :**

**a.** Write the common factors of 12 and 18 , deduce the greatest common factor (GCF).

**b.** A bridge of ants consists of 142 ants, and another bridge consists of 165 ants. How many ants are there in the two bridges together ?

**c.** Basma bought a two-liters bottle of milk. She drank 1,200 milliliters from the bottle. How many milliliters of milk are left ?

## 8 El-Monofia Governorate

Quesna Educational Directorate
Maths Supervision



**1. Choose the correct answer :**

a. $13 + 0 = 13$, is the ——— property.

A. associative. B. commutative. C. additive identity. D. none of the above.

b. 423 cm = ———

A. 23 m, 4 cm. B. 2 m, 3 cm C. 4 m, 23 cm D. 3 m, 42 cm

c. * $734 \div 3$ = ———

A. 24 R 2 B. 240 C. 244 D. 244 R 2

**2. Put (✓) for the correct statement and (✗) for the incorrect statement.**

a. 3 tens and 9 ones = $10 \times 390$ ( )

b. * Dina distributed 80 stickers among 5 of her friends , then each one will take 20 stickers. ( )

c. The area of a square with side length 7 cm = 49 $cm^2$ ( )

**3. Complete :**

a. * $7 + 12 \times 4 + 6$ = ———

b. A number that has only two factors and their sum of 8 is ———

c. The standard form of the number four hundreds and nine is ———

**4. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| (A) | (B) |
|---|---|
| a. $6 \times 17$ | 102 |
| b. The greatest number formed from (4 , 3 , 2 , 5 , 9) | 500,000 |
| c. Hanaa said that 5,000 hundreds = ——— | 95,432 |

**5. Answer the following questions :**

a. The country has provided a vaccination against the corona virus. In the first stage, 1,653,465 people were vaccinated and 3,312,447 were vaccinated in the second stage. What is the total number of people vaccinated in both stages ?

b. Samir and Mohamed participated in a project , Samir paid 342,650 pounds if the cost of the project is 668,500 pounds how much is Mohamed paying ?

c. A square picture with a side length 8 cm. Hussein wants to make a piece of glass to cover this picture , what is the area of the glass piece ?

## 9 El-Gharbia Governorate

Samanoud Educational Directorate
Mathematics Inspection

**1. Choose the correct answer :**

a. 1 day and 5 hours = ——— hours.

A. 29 B. 65 C. 15 D. 35

b. * The dividend in 658 ÷ 6 = 109 R 4 is ———

A. 658 B. 6 C. 109 D. 4

c. What is the standard form of eighteen million , six hundred five thousand ?

A. 18,605,000 B. 81,605,000 C. 1,860,500 D. 18,650,000

**2. Complete :**

a. * 63 ÷ 7 + 3 = ———

b. The value of the digit 6 in 61,230,478 is ———

c. The value of the symbol H in the equation H - 1,590 = 3,410 is ———

**3. Put (✓) for the correct statement and (✗) for the incorrect statement.**

a. 800 thousands = 8 millions ( )

b. 4 × 3,000 = 4 × 3 × 100 ( )

c. 6 times of 5 = 25 ( )

**4. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| (A) | (B) |
|---|---|
| a. 15 kg = ——— g | 5,000 |
| b. The value of the digit 5 in the numeral 4,125,081 is ——— | 4,200,000 |
| c. 420 × 10 = ——— | 1 |
| d. 25 hundred thousands < ——— | 15,000 |
| e. 4,000 – 3,999 = ——— | 4,200 |

**5. Answer the following questions :**

a. A road of 675 km length. If a train traveled a distance of 239 km from this road.
What is the remaining distance of the road ?

b. * Seliem placed 32 bottles of juice on 8 tables equally.
How many bottles of juice on each table ?

## 10 El-Dakahlia Governorate — Mathematics Supervision

**1. Complete :**

**a.** In the corresponding bar model
The value of the unknown K = _____

| K | |
|---|---|
| 2515 | 4370 |

**b.** In the equation : 32 ÷ 8 = 4 , the dividend is _____ , the divisor is _____ and the quotient is _____

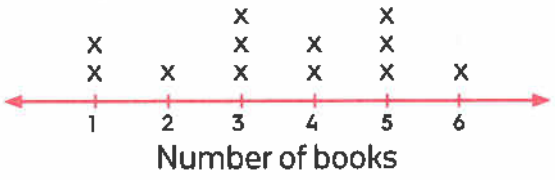
**c.** The common factor of all numbers is _____

**d.** 32 L , 77 mL = _____ mL

**2. Answer the following questions :**

**a.** A road of 768 km length. If a train traveled a distance of 328 km from this road , what is the remaining distance of the road ?

**b.** The key of a line plot indicates that each X = 2 children. How many students read 5 books yesterday ?




**3. Choose from column (B) suitable for columan (A) :**

| (A) | (B) |
|---|---|
| a. A multiple of 11 is | 40 |
| b. 6 weeks = _____ days. | 28 |
| c. A number equal 8 times of the number 5 is _____ | 33 |
| d. A perimeter of square of side length is 7 cm = _____ cm | 42 |

**4. Choose the correct answer :**

**a.** The number in standard form 138 million , 802 thousand , 341 is _____

A. 138,000,802,341 B. 183,802,562
C. 138,802,341 D. 138,820,341

**b.** 6,325 gm = _____

A. 6,000 kg , 352 gm B. 63 kg , 25 gm
C. 60 kg , 325 gm D. 6 kg , 325 gm

**c.** The prime number has _____ factors only.

A. 0 B. 1 C. 2 D. 4

**d.** Area of rectangle with length 9 cm and width 6 cm = _____ $cm^2$

A. 3 B. 30 C. 15 D. 54

**e.** * Which of the following equals 24 ?

A. 3 × 3 + 5 B. 120 ÷ 5 C. 6 × 6 D. 8 + 16 ÷ 8

## 11 Ismailia Governorate — Maths's Supervision

**1. Choose the correct answer :**

**a.** The capacity of a juice can is 1 liter and 500 ml , then its capacity in milliliters = _____ ml.

**A.** 150 **B.** 1,500 **C.** 15,000 **D.** 1,005

**b.** Which of the following represents the commutative property in addition ?

**A.** 635 + 492 = 492 + 635 **B.** 0 + 847 = 847

**C.** [18 + 2] + 16 = 36 **D.** 1 + 131 = 132

**c.** Which digit can be placed in the square to make the mathematical expression is correct ?

6,201,351 > 6,20□, 351

**A.** 0 **B.** 1 **C.** 2 **D.** 3

**d.** * 2,385 ÷ 3 = _____

**A.** 795 **B.** 975 **C.** 759 **D.** 597

**2. Complete :**

**a.** The value of the digit 6 in 61,230,478 is

**b.** * 634 ÷ 7 = _____ R _____

**c.** 48 × 12 = 12 × _____

**3. Put (✓) for the correct statement and (✗) for the incorrect statement.**

**a.** The area of a square its side length is 7 cm = 49 $cm^2$ ( )

**b.** 1 dm = 10 cm ( )

**c.** * 16 × [18 – 8] + 6 = 158 ( )

**4. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| (A) | (B) |
|---|---|
| a. A factor of 20 is _____ | 35 |
| b. The additive identity is _____ | 10 |
| c. 5 weeks = _____ days. | 0 |

**5. Answer the following questions :**

**a.** Find the GCF of 30 and 45

**b.** There are 6 people who won 145 pounds each at the fair.
How much money did they win all together ?

## 12 Suez Governorate — Maths Supervision

**1. Choose the correct answer :**

**a.** List all the factors of 16

**A.** 1 , 16 **B.** 2 , 4 , 8 **C.** 1 , 2 , 4 , 8 , 16 **D.** 1 , 2 , 4 , 6 , 8 , 16

**b.** There are 4 bicycles on a road , and 14 times as many cars as bicycles. How many cars are on the road ?

**A.** 46 **B.** 14 **C.** 56 **D.** 18

**c.** Which answer represents rounding 32,582,346 to the nearest million ?

**A.** 30,000,000 **B.** 32,600,000 **C.** 32,000,000 **D.** 33,000,000

**d.** Adel spends 6 hours at school. If we want to calculate Adel's school day in minutes, we :

**A.** add 6 with 60 **B.** add 6 with 24

**C.** multiply 6 by 60 **D.** multiply 6 by 24

**2. Complete :**

**a.** * 40 ÷ 4 – 3 = _____

**b.** A week , and two days = _____ days.

**c.** A square has an area of 16 square centimeters , then its perimeter = _____ cm

**3. Put (✓) for the correct statement and (✗) for the incorrect statement.**

**a.** Area of rectangle [A] = length [L] + width [W] ( )

**b.** The property : 5 × 8 = 8 × 5 is called commutative property. ( )

**c.** The common multiple for all numbers is one. ( )

**4. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| [A] | [B] |
|---|---|
| **a.** 700 tens = _____ hundreds | 5,040 |
| **b.** The smallest odd prime number is _____ | 70 |
| **c.** 1,008 × 5 = _____ | 3 |

**5. a.** An even number between 20 and 30 some of its factors include :

1 , 2 , 4 , 7 and 14. What is it ? – The number is _____

**b.** Hany paints pictures and sells them at art shows. He charges 56 L.E. for a picture. Find the total price for 15 pictures. – The total price = _____

## 13 Port Said Governorate — Maths Supervision

**1. Choose the correct answer :**

a. * $30 - 5 \times [7 - 4] =$ ……

A. 22 B. 14 C. 15 D. 19

b. 2 days and 2 hours = …… hours.

A. 22 B. 4 C. 62 D. 50

c. Round 6,749,001,551 to the nearest milliard =

A. 6,000,000,000 B. 7,000,000,000

C. 6,700,000,000 D. 8,000,000,000

d. …… is a factor of 63

A. 2 B. 5 C. 7 D. 11

**2. Complete :**

a. 284,615 – 196,392 = ……

b. A square has an area of 16 square centimeters , then its perimeter = ……

c. A jug of 10 liters of water. How many milliliters dose it have ? ……

d. * In the following area model 8

| $8 \times 200 = 1{,}600$ | $8 \times 7 = 56$ |
|---|---|
| 200 | 7 |

The quotient equals ……

**3. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| (A) | (B) |
|---|---|
| a. The common factor of all numbers is | 3 |
| b. The smallest odd prime number is …… | 420 |
| c. $21 \times 20 =$ …… | 490 |
| d. In the opposite bar model the value of b is …… | 1 |

| 750 | |
|---|---|
| 260 | b |

**4. Answer the following questions :**

a. List the following numbers in a descending order :
900 thousands , 9 millions , 5 millions and 7 hundred thousands , 550 , 223

b. There are 6 people who won 145 pounds each at the fair.
How much money did they win all together ?

c. An even number between 20 and 30 some of its factors include 1 , 2 , 4 , 7 and 14
Which number is it ?

## 14 Damietta Governorate — Maths Supervision

**1. Choose the correct answer :**

**a.** Which of the following represents the Commutative Property in addition ?

A. $635 + 492 = 492 + 635$ B. $0 + 847 = 847$

C. $[18 + 2] + 16 = 36$ D. $1 + 131 = 132$

**b.** The number 1 milliard , 235 million and 127 in standard form = ……

A. 1,235,000,127 B. 1,272,351 C. 1,235,127 D. 1,235,127,000

**c.** A rectangle of length equal to 20 cm. and width equal to 10 cm , then its area is equal to …… square cm.

A. $2 \times 20 + 2 \times 10$ B. $20 + 10$ C. 60 D. 200

**d.** * 52 pounds distributed equally among 6 friends, then the remainder is …… pounds.

A. 2 B. 4 C. 3 D. 5

**2. Complete :**

| | |
|---|---|
| 7,620 | |
| C | 4,310 |

**a.** In the corresponding bar model : the value of the unknown C = ……

**b.** * $32 \div 4 - 6$ = ……

**c.** The Additive Identity element is ……

**d.** The numbers 1 , 3 , 9 , 27 are all factors of ……

**3. Put (✓) for the correct statement and (✗) for the incorrect statement.**

**a.** $60 \times 40 > 1{,}600$ ( )

**b.** The place value of the number 5 in the number : 9,008,527,314 is Hundred Thousands. ( )

**c.** The subtraction is a commutative process. ( )

**4. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| (A) | (B) |
|---|---|
| a. Maha saves 10 pounds of her expenses every day. How much does she save per week ? …… | 25,000 |
| b. The number 25 million = …… thousand. | 4,000 |
| c. Mona drank 4 liters of water , the amount she drank in milliliters is equal to …… | 70 |

**5. Answer the following questions :**

**a.** There are 6 people who won 145 pounds each at the fair. How much money did they win all together ?

**b.** * Ayman saved 484 L.E. to buy a toy , he did this by saving 4 L.E. every day. How many days were needed to save this amount of money ?

## 15 Kafr El-Sheikh Governorate

El-Hamol Educational Zone
Maths Supervision



**1. Choose the correct answer :**

a. The capacity of a juice can is 1 liter and 500 ml , then its capacity in milliliters = _____ ml.

A. 150 B. 1,500 C. 15,000 D. 1,005

b. A rectangle its length is [l] and its width is [w] , what is its perimeter ?

A. l + w B. l × w C. 2 × [l + w] D. [2 x l] + w

c. 18 ÷ 3 + 4 − 2 = _____

A. 8 B. 16 C. 2 D. 0

**2. Complete :**

a. 4 minutes and 20 seconds = _____ seconds.

b. * 4,000 ÷ 4 = _____

c. 284,615 – 106,392 = _____

**3. Put (✓) for the correct statement and (✗) for the incorrect statement.**

a. 6,514 < 1 + 20 + 400 + 30,000 ( )

b. To convert 50 millimeters in centimeters , we multiply by 10 ( )

c. 2 dm , 6 mm < 206 mm ( )

**4. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| (A) | (B) |
|---|---|
| a. _____ is a factor of 20 | 35 |
| b. The additive identity is _____ | 10 |
| c. A multiple of 11 is _____ | 300 |
| d. 5 weeks = _____ days | 0 |
| e. 5 minutes = _____ seconds | 55 |

**5.** The country has provided a vaccination against the Corona virus. In the first stage 1,653,465 people were vaccinated and 3,312,447 in the second stage. What is the total number of people vaccinated in both stages ?

## 16 El-Beheira Governorate

Kafr Al-Dawar Center Managment
Maths Supervision



**1. Choose the correct answer :**

a. 2 days and 2 hours = ——— hours.

A. 22 B. 4 C. 62 D. 50

b. 35 × 0 = ———

A. 0 B. 35 C. 350 D. 305

c. * Which is the first step when solving : 27 – 12 ÷ 3 ?

A. 27 – 12 B. 12 – 3 C. 12 ÷ 3 D. 27 ÷ 3

d. Which number is the greatest common factor [GCF] of 12 and 6 ?

A. 2 B. 3 C. 6 D. 12

e. Which partial products can be to solve [35 × 6] ?

A. [3 × 6] × [50 × 6] B. [30 × 6] × [50 × 6] C. [30 × 6] + [5 × 6] D. [3 × 6] + [5 × 6]

**2. Complete :**

a. * The quotient in 6,300 ÷ 7 is ———

b. The smallest odd prime number is ———

c. ——— is the common factor for all numbers.

d. A number that has only two factors and their sum is 8 , then the number is ———

e. The numbers 1 , 3 , 9 , 27 are all factors of ———

**3. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| [A] | [B] |
|---|---|
| a. The value of the digit 7 in the number 270 , 150 , 081 is ——— | 28 |
| b. 342,000 + 358,000 = ——— | 70,000 |
| c. Number equal 7 times of the number 4 is ——— | 700,000 |
| d. Maha saves 10 pounds of her expenses every day. How much does she save per week ? ——— | 70,000,000 |
| e. 700 hundreds = ——— | 70 |

## 17 El-Fayoum Governorate — Maths Supervision

**1. Choose the correct answer :**

**a.** The expanded form of the numeral 7 , 215 , 603 is _____

**A.** 3 + 60 + 5,000 + 10,000 + 200,000 + 7,000,000

**B.** 3 + 60 + 500 + 1,000 + 20,000 + 700,000

**C.** 3 + 600 + 5,000 + 10,000 + 200,000 + 7,000,000

**D.** 3 + 600 + 5,000 + 1,000 + 200,000 + 7,000,000

**b.** Which of the following represents the Commutative Property in addition ?

**A.** 635 + 492 = 492 + 635 **B.** 0 + 847 = 847

**C.** [18 + 2] + 16 = 36 **D.** 1 + 131 = 132

**c.** * Hany bought 9 pens for 108 L.E. , then the price of each pen equals _____ L.E.

**A.** 9 **B.** 12 **C.** 14 **D.** 15

**d.** A rectangle of length equal to 20 cm and width equal to 10 cm , then its area is equal to _____ square cm.

**A.** 2 × 20 + 2 × 10 **B.** 20 + 1 **C.** 60 **D.** 200

**2. Complete :**

**a.** 42 ÷ 7 + 3 = _____

**b.** * The place value of the digit 2 in the number 5,200,000 is _____

**c.** If 853 – A = 751 , the value of A = _____

**d.** 8 meters , 45 cm = _____ cm

**3. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| [A] | [B] |
|---|---|
| a. A prime number between 30 and 35 is _____ | 744 |
| b. The common multiples of 6 and 8 are _____ | 9 hundred |
| c. 124 × 6 = _____ | 24 |
| d. _____ = 2 × 450 | 1 |
| e. The identity of multiplication is _____ | 31 |

**4. Answer the following questions :**

**a.** Rectangular gymnasium of 7 meters long and 4 meters wide. Find its perimeter.

**b.** There are 6 people who won 145 pounds each at the fair.
How much money did they win all together ?

## 18 Beni Suef Governorate

Administration of Governmental Language Schools



**1. Choose the correct answer from these given :**

**a.** Adel spends 6 hours at school. If we want to calculate Adel's school day in minutes , we _____

**A.** add 6 with 60 **B.** add 6 with 24

**C.** multiply 6 by 60 **D.** multiply 6 by 24

**b.** $9 + 2 \times [15 \div 5] =$ _____

**A.** 15 **B.** 21 **C.** 11 **D.** 18

**c.** A rectangle its length is (l) and its width is (w) , what is its perimeter ?

**A.** $l + w$ **B.** $l \times w$ **C.** $2 \times (l + w)$ **D.** $(2 \times l) + w$

**d.** The list of all the factors of 16 is _____

**A.** 1 , 16 **B.** 2 , 4 , 8 **C.** 1 , 2 , 4 , 8 , 16 **D.** 1 , 2 , 4 , 6 , 8 , 16

**e.** Which answer represents rounding 32,582,346 , to the nearest million ?

**A.** 30,000,000 **B.** 32,600,000 **C.** 32,000,000 **D.** 33,000,000

**2. Put (✓) for the correct statement and (✗) for the incorrect statement.**

**a.** All factors of 6 are 2 , 3 , 6 ( )

**b.** 80 meters , 90 centimeters = 8,900 centimeters. ( )

**c.** $6{,}514 < 1 + 20 + 400 + 30{,}000$ ( )

**3. Complete :**

**a.** $550 \div 5 =$ _____

**b.** The length of the side of a square whose perimeter is 28 cm is _____ cm

**4. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| (A) | (B) |
|---|---|
| **a.** _____ is a factor of 20 | 35 |
| **b.** The additive identity is _____ | 10 |
| **c.** A multiple of 11 is _____ | 300 |
| **d.** 5 weeks = _____ days. | 0 |
| **e.** 5 minutes = _____ seconds. | 55 |

**5.** ✻ Amgad has 84 stickers , he distributed them equally among 7 of his friends. What is the share of each one ?

## 19 El-Minia Governorate

Samalot Educational Zone
Maths Supervision



**1. Choose the correct answer :**

a. The number 1 milliard , 235 million and 127 in standard form = .....

A. 1,235,000,127 B. 1,235,127 C. 1,272,351 D. 1,235,127,000

b. Round 6,749,001,551 to the nearest milliard = .....

A. 6,000,000,000 B. 7,000,000,000

C. 6,700,000,000 D. 8,000,000,000

c. * 4 + 80 ÷ 5 = .....

A. 89 B. 16 C. 20 D. 24

d. 35 × 0 = .....

A. 0 B. 35 C. 350 D. 305

**2. Complete :**

a. 6 + 6 + 6 + 6 + 6 = 5 × .....

b. The number of factors of the prime numbers is .....

c. * The dividend in 124 ÷ 4 = 31 is .....

d. If 853 – A = 751 The value of A = .....

**3. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| [A] | [B] |
|---|---|
| a. 15 kg = ..... g | 5,000 |
| b. The value of the digit 5 in the numeral 4,125,081, is ..... | 4,200,000 |
| c. 420 × 10 = ..... | 1 |
| d. 2,500,000 < ..... | 15,000 |
| e. 4,000 – 3,999 = ..... | 4,200 |

**4. Put (✓) for the correct statement and (✗) for the incorrect statement.**

a. 85 ÷ 6 = 15 R 5 ( )

b. To convert 50 millimeters in centimeters , you mutliply by 10 ( )

**5.** List the following lengths in an ascending order : 8 m , 8000 cm , 8 km , 8 mm

## 20 Souhag Governorate — Maths Inspection

**1. Choose the correct answer :**

**a.** The rectangle its length is [l] and its width is [w] , what is perimeter ?

A. l + w  B. l × w  C. 2 x [l + w]  D. [2 x l] + w

**b.** 1 day and 5 hours = ——— hours.

A. 29  B. 65  C. 15  D. 35

**c.** 45 is ——— times the number 5

A. 6  B. 9  C. 5  D. 40

**d.** * 1,695 ÷ 5 = ———

A. 319  B. 339  C. 329  D. 393

**2. Complete :**

**a.** The value of the digit 6 in 61,230,478 is ———

**b.** In the opposite bar model the value of b = ———

| b | |
|---|---|
| 9901 | 1000 |

**c.** 48 × 12 = 12 × ———

**d.** * 2 + 6 × 4 – 8 = ———

**3. Match each paragraph from the column (A) to what is appropriate from the column (B) :**

| [A] | [B] |
|---|---|
| a. The common factor for all numbers is ——— | 15,000 |
| b. The smallest odd prime number is ——— | 5 |
| c. 15 kg = ——— g | 1 |
| d. 600,000 + 5000 + 212 = ——— | 3 |
| e. A rectangle with an area of 20 square meters and width of 4 meters its length is ——— meters. | 605,212 |

**4. Answer the following questions :**

**a.** Find the G.C.F. of the two numbers 30 and 45

**b.** A square-shaped room has a side length 4 meters.
What is the area of the ground of the room in square meters ?